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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10

IN THE MATTER OF:

BLACKBIRD MINE
Lemhi County, Idaho

M.A. Hanna Company, Hanna Services
Company, Noranda Mining Inc.,
Noranda Exploration, Inc.,
Blackbird Mining Company Limited
Partnership, Machinery Center, Inc.,
Alumet Corporation, Union Carbide
Chemicals and Plastics Corporation,
United States Bureau of Mines, and
United States Geological Survey.

U.S. EPA Docket
No. 10-94-0222

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1
2 **ADMINISTRATIVE ORDER ON CONSENT**
3 **FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY AND**
4 **OTHER REMOVAL ACTION**

5 I. INTRODUCTION

6 1. This Administrative Order on Consent (Order) is entered
7 into voluntarily by the United States Environmental Protection
8 Agency (EPA) and the Noranda Mining Inc., Noranda Exploration,
9 Inc., Blackbird Mining Company Limited Partnership and Alumet
10 Corporation (hereinafter referred to as Respondents). United
11 States Bureau of Mines, United States Geological Survey, United
12 States General Services Administration, M.A. Hanna Company, Hanna
13 Services Company, now known as Rojet Enterprises, Inc., Union
14 Carbide Chemicals and Plastics Corporation, and Machinery Center,
15 Inc. are not signing this Order. The Order concerns (1) the
16 preparation and performance of a remedial investigation and
17 feasibility study (RI/FS) at the Blackbird Mine Site located in
18 Lemhi County, Idaho (the "Blackbird Mine Site" or the "Site"), (2)
19 the evaluation and design of a removal action (Early Action) by
20 the Respondents at the Site to abate an imminent and substantial
21 endangerment to the public health, welfare or the environment that
22 may be presented by the actual or threatened release of hazardous
23 substances at or from the Site, and (3) reimbursement of all
24 oversight costs incurred by EPA in connection with the RI/FS, Early
25 Action, and other response activities conducted at the Site.
26
27

1 II. JURISDICTION AND GENERAL PROVISIONS

2 2. This Order is issued under the authority vested in the
3 President of the United States by Sections 104, 106, 107 and 122 of
4 the Comprehensive Environmental Response, Compensation, and
5 Liability Act, 42 U.S.C. §§ 9604, 9606, 9607 and 9622, as amended
6 (CERCLA). This authority was delegated to the Administrator of EPA
7 on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2923-26
8 (1987), and further delegated to the Regional Administrators on
9 September 13, 1987, by EPA Delegation Nos. 14-14-A, 14-14-B, 14-14-
10 C and 14-14-D. This authority was redelegated by the Regional
11 Administrator, EPA Region 10, to the Superfund Remedial Branch
12 Chief on September 27, 1990.

13 3. The Respondents agree to undertake all actions required
14 by the terms and conditions of this Order. In any action by EPA or
15 the United States to enforce the terms of this Order, Respondents
16 consent to and agree not to contest the authority or jurisdiction
17 of EPA to issue or enforce this Order, and agree not to contest the
18 validity of this Order or its terms.

19 4. The Respondents' participation in this Order shall not
20 constitute or be construed as an admission of liability or an
21 admission of EPA's findings, conclusions or determinations
22 contained in this Order .

23
24 III. PARTIES BOUND

25 5. This Order shall apply to and be binding upon EPA, the
26 Respondents, and the Respondents' agents, successors, and assigns.

27 Any change in ownership or corporate status of Respondents

1 including, but not limited to, any transfer of assets or real or
2 personal property shall in no way alter Respondents'
3 responsibilities under this Order. Respondents are jointly and
4 severally responsible for carrying out all actions required of them
5 by this Order. Compliance or noncompliance by one or more
6 Respondents with any provision of this Order shall not excuse or
7 justify noncompliance by any other Respondents.

8 6. The signatories to this Order certify that they are
9 authorized to execute and legally bind the parties they represent
10 to this Order.

11 7. The Respondents shall provide a copy of this Order to any
12 subsequent owners or successors before ownership rights or stock or
13 assets in a corporate acquisition are transferred prior to
14 termination and satisfaction of the Order under Section XXXIII of
15 this Order. Respondents shall provide a copy of this Order to all
16 contractors, subcontractors, laboratories, and consultants which
17 are retained to conduct any work performed under this Order, within
18 14 days after the effective date of this Order or the date of
19 retaining their services, whichever is later. Respondents shall
20 condition any such contracts upon satisfactory compliance with this
21 Order. Notwithstanding the terms of any contract, Respondents are
22 responsible for compliance with this Order and for ensuring that
23 its subsidiaries, employees, contractors, consultants,
24 subcontractors, and agents comply with this Order.

1 IV. STATEMENT OF PURPOSE

2 8. In entering into this Order, the objectives of EPA and
3 the Respondents are:

4 (a) to determine the nature and extent of contamination and
5 any threat to the public health, welfare, or the environment
6 caused by the release or threatened release of hazardous
substances, pollutants or contaminants at or from the Site by
conducting a remedial investigation;

7 (b) to determine and evaluate alternatives for remedial action
8 to prevent, mitigate or otherwise respond to or remedy any
9 release or threatened release of hazardous substances,
pollutants, or contaminants at or from the Site by conducting
a feasibility study;

10 (c) to evaluate and design an Early Action to abate an
11 imminent and substantial endangerment to the public health,
12 welfare or the environment that may be presented by the actual
13 or threatened release of hazardous substances at or from the
Site so that implementation of the design approved by EPA
under this Order can begin as soon as possible under a
separate enforcement agreement or order or amendment to this
Order;

14 (d) to accomplish the aforementioned in a manner consistent
15 with the NCP and with applicable EPA guidance documents and
16 policies;

17 (e) to undertake the actions contemplated in a manner that
18 will contribute to the efficient performance of any long term
remedial action with respect to the releases and threatened
releases addressed by this Order; and

19 (f) to recover oversight costs incurred by EPA with respect
20 to this Order.

21 9. The activities conducted under this Order for the RI/FS
22 shall provide all appropriate and necessary information for the
23 RI/FS and Early Action, with the exception of the baseline risk
24 assessment to be performed by EPA, and for a record of decision
25 that is consistent with CERCLA and the National Contingency Plan
26 (NCP), 40 C.F.R. Part 300.

1 10. The activities conducted under this Order for the RI/FS
2 and Early Action are subject to approval by EPA, and shall be
3 conducted in compliance with all applicable EPA guidances,
4 policies, and procedures.
5

6 V. FINDINGS OF FACT

7 The following Paragraphs summarize the factual findings made
8 by EPA in support of the Conclusions of Law and Determinations of
9 this Order. Respondents neither admit nor deny EPA's findings,
10 and, except as provided in Paragraph 3, expressly reserve all
11 rights regarding such findings.

12 11. The Blackbird Mine is an inactive mine located in Lemhi
13 County, Idaho, approximately twenty miles west of Salmon, Idaho.
14 The unincorporated town of Cobalt is located approximately ten
15 miles downstream on Panther Creek. The Blackbird Mine consists of
16 approximately 830 acres of patented private mining claims, and is
17 situated within 10,000 acres of currently and previously held
18 unpatented mining claims in the Cobalt Ranger District of the
19 Salmon National Forest. The Blackbird Mine encompasses all or
20 portions of Blackbird, West Fork Blackbird, Meadow and Bucktail
21 Creeks. These Creeks are tributaries to Panther Creek. Panther
22 Creek flows into the main stem of the Salmon River.

23 12. Valuable mineral deposits were discovered in 1893.
24 Mining operations began in the early 1900's with the most extensive
25 period of extraction and production from 1949 to 1967. The
26 extraction of gold, silver, cobalt and copper ore from both
27 underground and open pit mining operations resulted in

1 approximately 10.3 acres of unreclaimed open pit, at least 10 miles
2 of underground workings, approximately 4.8 million tons of waste
3 rock, and 2 million tons of mill tailings.

4 13. Numerous adits and ventilation shafts at the Blackbird
5 Mine connect underground openings with the surface in the
6 Blackbird, Meadow and Bucktail Creek drainages.

7 14. Beginning in the 1890's, ore tailings from Blackbird Mine
8 were deposited at numerous locations in the Blackbird Creek
9 drainage system. During the early period of operation, the
10 tailings were deposited directly into Blackbird Creek for disposal.
11 Starting in the 1950's, the mill tailings were disposed of in the
12 West Fork Tailings Dam on the Site.

13 15. Since mining activities at Blackbird Mine began, drainage
14 and leachate from the Mine, including but not limited to drainage
15 from contaminated seeps and springs, the tailings impoundment, the
16 adits and numerous waste rock piles, have contained and continue to
17 contain high acidity levels and significant concentrations of
18 hazardous substances, which include, but are not limited to,
19 copper, cobalt, and arsenic. These hazardous substances have been
20 disposed of and released and continue to be released into the
21 surface water and ground water in and around the Blackbird Mine.

22 16. The actual release and contaminant migration pathways
23 include but are not limited to surface and subsurface soils,
24 surface waters and sediments, groundwaters, biota, and air.

25 17. Based on recent studies performed by the state of Idaho
26 and federal natural resource trustees and approximately 20 years of
27 studies conducted by various private and governmental entities,

1 poor water quality resulting from the continuing release of
2 hazardous substances from the Blackbird Mine has contributed
3 significantly and continues to contribute significantly to (a)
4 contamination to surface and ground waters and sediment resources,
5 (b) the degradation of habitat for aquatic life, including resident
6 and anadromous fisheries in Panther and Big Deer Creeks, (c) the
7 continued decline of anadromous fish, and (d) the impeded recovery
8 of anadromous fish in the region, including the chinook salmon and
9 other aquatic biota which existed historically in Panther Creek and
10 its tributaries.

11 18. Currently, during spring high flows approximately 268
12 pounds of copper per day are discharged to Panther Creek via Big
13 Deer and Bucktail Creeks, and 59 pounds of copper per day are
14 discharged to Panther Creek via Blackbird Creek.

15 19. Fish take in dissolved forms of copper and other metals
16 across the gill. Low levels of copper in freshwater cause
17 olfactory and chemoreceptor impairment in salmonids and other fish,
18 which potentially impacts fish survival and reproduction.
19 Behavioral avoidance of chemical contaminants by migratory fish
20 that navigate by chemoreception has been demonstrated to impede
21 migration, leading to reduced numbers of spawning fish. In
22 addition, behavioral avoidance of copper may reduce migration of
23 juvenile fish to other tributaries for feeding, and may impede
24 downstream migration, further increasing mortality. For eggs and
25 embryos, chronic low level copper exposure has resulted in weakened
26 chorions (eggshells) and embryo deformities. After hatching, poor
27 yolk utilization and reduced growth have been demonstrated.

1 20. In addition, macroinvertebrates, the main food source for
2 fish, accumulate copper and other metals. Survival and growth are
3 reduced in fish that ingest metal-contaminated macroinvertebrates.
4 Moreover, copper and cobalt are toxic to macroinvertebrates and
5 therefore, reduce the food supply for fish.

6 21. Respondents and/or their predecessors, are past or
7 current owners and/or operators of the Blackbird Mine Site.

8 22. The state of Idaho commenced an action against some of
9 the Respondents in 1983 by filing a Complaint in the United States
10 District Court for the District of Idaho seeking damages under
11 CERCLA, and Idaho statutory and common law, for alleged injury to,
12 destruction of, and/or loss of natural resources in and around the
13 Site.

14 23. EPA proposed to add the Blackbird Mine Site to the
15 National Priorities List, pursuant to Section 105(a)(8) of CERCLA,
16 42 U.S.C. § 9605(a)(8), on May 10, 1993, 58 Federal Register 27507.

17 24. The United States, on behalf of EPA, the United States
18 Forest Service, and the National Oceanic and Atmospheric
19 Administration, filed suit in the United States District Court for
20 the District of Idaho, in June 1993, seeking, inter alia, recovery
21 of past and future response costs under CERCLA and natural resource
22 damages.

23 25. Some of the defendants named by the United States in the
24 Complaint filed counterclaims or third-party claims against United
25 States agencies, including the United States Bureau of Mines,
26 United States Geological Survey and the United States Forest
27 Service, General Services Administration and Department of

1 Interior, alleging that the federal agencies are liable under
2 CERCLA.

3 26. EPA entered into an Administrative Order on Consent for
4 Removal Response Activities with Noranda Mining Inc. on
5 August 6, 1993. Under the Order, Noranda Mining Inc., with EPA
6 oversight, performed an emergency removal action at the West Fork
7 Tailings Dam to help protect the environment.

8 27. By letter dated July 29, 1994, EPA initiated negotiations
9 with all identified parties for an agreement to perform an RI/FS
10 and conduct a removal action at the Site. M.A. Hanna Company,
11 Hanna Services Company, now known as Rojet Enterprises Inc., and
12 Machinery Center, Inc. failed to join with the parties who are
13 signing this Order by refusing to pay a per capita share of costs.
14 EPA considers M.A. Hanna Company, Hanna Services Company, now known
15 as Rojet Enterprises Inc., and Machinery Center, Inc. to be
16 recalcitrant non-settlers. Union Carbide Chemicals and Plastics
17 Corporation is negotiating a separate settlement with the United
18 States.

19
20 VI. CONCLUSIONS OF LAW AND DETERMINATIONS

21 Based on the Findings of Fact in Section V, EPA makes the
22 following Conclusions of Law and Determinations. Respondents
23 neither admit nor deny EPA's conclusions and determinations and,
24 except as provided in Paragraph 3, expressly reserve all rights
25 regarding such conclusions and determinations.

26 28. The Blackbird Mine Site is a "facility" as defined in
27 Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

1 29. Wastes and constituents at the Site, and disposed of at
2 the Site, identified in the Findings of Fact are "hazardous
3 substances" as defined in Section 101(14) of CERCLA, 42 U.S.C.
4 § 9601(14).

5 30. The presence of hazardous substances at the Site or the
6 past, present or potential migration of hazardous substances
7 currently located at or emanating from the Site, constitute actual
8 and/or threatened "releases" as defined in Section 101(22) of
9 CERCLA, 42 U.S.C. § 9601(22). The actual or threatened release of
10 hazardous substances from the Site may present an imminent and
11 substantial endangerment to the public health, welfare, or the
12 environment within the meaning of Section 106(a) of CERCLA, 42
13 U.S.C. § 9606(a).

14 31. Each Respondent is a "person" as defined in Section
15 101(21) of CERCLA, 42 U.S.C. § 9601(21).

16 32. Each Respondent may be held liable under Section 107(a)
17 of CERCLA, 42 U.S.C. § 9607(a).

18 33. The conditions present at the Blackbird Mine Site meet
19 the criteria for a removal action as stated in the NCP, 40 C.F.R.
20 § 300.415 including, but not limited to, actual or potential
21 contamination of sensitive ecosystems due to the presence of
22 copper, cobalt and arsenic in significantly elevated concentrations
23 in the surface and ground waters at the Site.

24 34. The actions required by this Order are necessary to
25 protect the environment, are in the public interest, 42 U.S.C.
26 § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C.

27

1 §§ 9604(a)(1), 9622(a), and will expedite effective remedial action
2 and minimize litigation, 42 U.S.C. § 9622(a).

3 VII. NOTICE

4 35. EPA has notified the state of Idaho (State) that this
5 Order is being issued and that EPA is the lead agency for
6 coordinating, overseeing, and enforcing the response actions
7 required by the Order. The State, and the United States Forest
8 Service and the National Oceanic and Atmospheric Administration
9 (Trustees) will participate during the implementation of response
10 actions under the Order, and will be consulted with on deliverables
11 as set forth in this Order. The Forest Service and EPA will
12 coordinate their respective responsibilities in carrying out the
13 functions delegated to each agency by the President under Executive
14 Order 12580, the NCP, and CERCLA, on National Forest System Lands
15 at the Site.

16
17 VIII. DESIGNATION OF CONTRACTOR AND PROJECT COORDINATORS

18 36. All work performed under this Order shall be under the
19 direction and supervision of qualified personnel. Within 30 days
20 of the effective date of this Order, and before the work outlined
21 below begins, the Respondents shall notify EPA in writing of the
22 names, titles, and qualifications of the key personnel, including
23 contractors, subcontractors, consultants and laboratories to be
24 used in carrying out the RI/FS and Early Action.

25 37. The qualifications of the persons undertaking the work
26 for Respondents shall be subject to EPA's review for verification
27 that such persons meet minimum technical background and experience
28 requirements. This Order is contingent on Respondents' demonstra-

tion, to EPA's satisfaction, that Respondents are qualified to perform properly and promptly the actions set forth in this Order.

38. If EPA disapproves in writing of any key person(s)' technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacement(s) within 30 days of EPA'S written notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Order and to conduct a complete RI/FS and Early Action, and to seek reimbursement for costs and penalties from Respondents.

39. During the course of the RI/FS and Early Action, Respondents shall notify EPA in writing of any changes or additions in the key technical staff used to carry out such work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes and additions to personnel as it has hereunder regarding the initial notification.

40. Within 10 days after the effective date of this Order, the Respondents shall designate a Project Coordinator who shall be responsible for administration of all the Respondents' actions required by the Order. Respondents shall submit the designated Coordinator's name, address, telephone number, and qualifications to EPA. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site work.

41. If EPA disapproves of a selected Project Coordinator, Respondents shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 10 business days following EPA's disapproval. Receipt by Respondents' Project Coordinator of any notice or communication from EPA relating to this Order shall constitute receipt by all Respondents.

1 42. EPA has designated Fran Allans of the Region 10 Idaho
2 Operations Office, Hazardous Waste Branch as its Project
3 Coordinator. Respondents shall direct all submissions required by
4 this Order to EPA's Project Coordinator at 422 W. Washington,
5 Boise, ID. 83702.

6 43. EPA and Respondents shall have the right, subject to
7 paragraph 41, to change their designated Project Coordinators.
8 Respondents and EPA shall notify each other five business days
9 before such a change is made. This initial notification may be
10 orally made but it shall be promptly followed by a written notice.

11 44. To the maximum extent possible, communications between
12 the Respondents and EPA shall be directed to the Project
13 Coordinators by mail, with copies to such other persons as EPA, the
14 State, and Respondents may respectively designate. Communications
15 include, but are not limited to, all documents, reports, approvals,
16 and other correspondence submitted under this Order.

17 45. EPA's Project Coordinator shall have the authority
18 lawfully vested in a Remedial Project Manager (RPM) and On-Scene
19 Coordinator (OSC) by the NCP. In addition, EPA's Project
20 Coordinator shall have the authority consistent with the NCP, to
21 halt any work required by this Order, and to take any necessary
22 response action when she determines that conditions at the Site may
23 present an immediate endangerment to public health or welfare or
24 the environment. The absence of the EPA Project Coordinator from
25 the area under study pursuant to this Order shall not be cause for
26 the stoppage or delay of work.

1 46. EPA shall arrange for a qualified person(s) to assist in
2 its oversight and review of the conduct of the RI/FS, as required
3 by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and in the Early
4 Action. The oversight assistant(s) may observe work and make
5 inquiries in the absence of EPA, but is not authorized to modify
6 any work plan.

7
8 IX. RI/FS: WORK TO BE PERFORMED

9 47. Respondents shall conduct activities and submit
10 deliverables as provided by the attached RI/FS Statement of Work,
11 which is incorporated herein by reference, for the development of
12 the RI/FS. All such work shall be conducted in accordance with
13 CERCLA, the NCP, and EPA guidances, as may be amended or modified
14 by EPA, including but not limited to: the "Interim Final Guidance
15 for Conducting Remedial Investigations and Feasibility Studies
16 under CERCLA" (OSWER Directive # 9355.3-01); "Guidance for Data
17 Useability in Risk Assessment" (OSWER Directive # 9285.7-05) and
18 guidances referenced therein; and guidances referenced in the RI/FS
19 Statement of Work. EPA will assist Respondents to identify
20 relevant guidance upon request.

21 48. The general activities that Respondents are required to
22 perform are identified below, followed by a list of deliverables.
23 The tasks that Respondents must perform are described more fully in
24 the RI/FS Statement of Work and EPA guidances. The activities and
25 deliverables identified below shall be developed as provisions in
26 the work plan and sampling and analysis plan, and shall be
27 submitted to EPA as provided.

1 49. All work performed under this Order shall be in
2 accordance with the schedules herein, and in full accordance with
3 the standards, specifications, and other requirements of the work
4 plan and sampling and analysis plan, as initially approved or
5 modified by EPA, and as may be amended or modified by EPA from time
6 to time. For the purposes of this Order, day means calendar day
7 unless otherwise noted in the Order.

8 a. Task I: Scoping. EPA, in consultation with the State and
9 Trustees, determines the site-specific objectives of the RI/FS and
10 devises a general management approach for the Site, as stated in
11 the attached RI/FS Statement of Work. Respondents shall conduct
12 the remainder of scoping activities as described in the attached
13 RI/FS Statement of Work and referenced EPA guidances. Respondents
14 shall provide EPA with the deliverables listed below:

15 i. RI/FS Work Plan. Within 90 days after the effective date
16 of this Order, Respondents shall submit to EPA a complete
17 RI/FS work plan that satisfies the RI/FS Statement of Work.
18 If EPA, after consultation with the State and Trustees,
19 disapproves of or requires revisions to the RI/FS work plan,
in whole or in part, Respondents shall amend and submit to EPA
a revised work plan which is responsive to the directions in
all EPA comments, within 30 days of receiving EPA's comments.

20 ii. Sampling and Analysis Plan. Within 90 days after the
21 effective date of this Order, Respondents shall submit to EPA
22 a sampling and analysis plan. This plan shall consist of a
23 field sampling plan (FSP) and a quality assurance project plan
(QAPjP), as described in the RI/FS Statement of Work and EPA
24 guidances. If EPA, after consultation with the State and the
25 Trustees, disapproves of or requires revisions to the sampling
and analysis plan, in whole or in part, Respondents shall
amend and submit to EPA a revised sampling and analysis plan
which is responsive to the directions in all EPA comments,
within 30 days of receiving EPA's comments.

26 iii. Site Health and Safety Plan. Within 90 days after the
27 effective date of this Order, Respondents shall submit to EPA
a health and safety plan that is consistent with the
requirements in the RI/FS Statement of Work. The health and

1 safety plan developed for the 1993 West Fork Tailings Dam may
2 be used and amended as necessary.

3 Following approval or modification by EPA, the RI/FS work plan and
4 the sampling and analysis plan, including a critical path schedule,
5 are incorporated by reference herein.

6 b. Task II: Community Relations Plan. EPA will prepare a
7 community relations plan, in accordance with EPA guidance and the
8 NCP. To the extent requested by EPA Respondents shall provide
9 information supporting EPA's community relations programs.

10 c. Task III: Site Characterization. Following EPA approval
11 or modification of the work plan and sampling and analysis plan,
12 Respondents shall implement the provisions of these plans to
13 characterize the Site. Respondents shall complete Site character-
14 ization by July 30, 1995. Respondents shall provide EPA with
15 validated analytical data within 60 days of each sampling activity,
16 in an electronic format (i.e., computer disk) showing the location,
17 medium and results. Upon EPA request Respondents shall provide EPA
18 with unvalidated analytical data within 30 days of each sampling
19 event. Within 7 days of completion of field activities,
20 Respondents shall notify EPA in writing. During Site
21 characterization, Respondents shall provide EPA with the following
22 deliverables, as described in the RI/FS Statement of Work and work
23 plan:

24 i. Technical Memorandum on Modeling of Site Character-
25 istics. Where EPA or Respondents propose that modeling
26 is appropriate during project planning, within 30 days
27 after approval of the work plan and sampling and analysis
28 plan, Respondents shall submit a technical memorandum on
modeling of Site characteristics. If EPA, after
consultation with the State and the Trustees, disapproves
of or requires revisions to the technical memorandum on

1 modeling of Site characteristics, in whole or in part,
2 Respondents shall amend and submit to EPA a revised
3 technical memorandum on modeling of Site characteristics
4 which is responsive to the directions in all EPA
5 comments, within 7 days of receiving EPA's comments.

6 ii. Preliminary Site Characterization Summary. Within
7 30 days of completion of the field sampling and analysis,
8 as specified in the work plan, Respondents shall submit
9 a Site characterization summary to EPA.

10 d. Draft Remedial Investigation Report [See Task III of the
11 attached RI/FS Statement of Work.] Within 30 days after submittal
12 of the preliminary site characterization summary, if no additional
13 data gaps are identified, Respondents shall submit a draft remedial
14 investigation report consistent with the RI/FS Statement of Work,
15 work plan, and sampling and analysis plan. If EPA, after
16 consultation with the State and the Trustees, disapproves of or
17 requires revisions to the remedial investigation report, in whole
18 or in part, Respondents shall amend and submit to EPA a revised
19 remedial investigation report which is responsive to the directions
20 in all EPA comments, within 30 days of receiving EPA's comments.

21 e. Task IV: Treatability Studies. Respondents shall con-
22 duct treatability studies as determined necessary by EPA, except
23 where Respondents can demonstrate to EPA's satisfaction that they
24 are not needed. Major components of the treatability studies
25 include determination of the need for and scope of studies, the
26 design of the studies, and the completion of the studies, as
27 described in the RI/FS Statement of Work. During treatability
28 studies, Respondents shall provide EPA with the following
deliverables:

i. Identification of Candidate Technologies Memorandum.
This memorandum shall be submitted to EPA within 30 days

1 of the effective date of this Order. If EPA, after
2 consultation with the State and the Trustees, disapproves
3 of or requires revisions to the technical memorandum
4 identifying candidate technologies, in whole or in part,
5 Respondents shall amend and submit to EPA a revised
6 technical memorandum identifying candidate technologies
7 which is responsive to the directions in all EPA
8 comments, within 15 days of receiving EPA's comments.

9 ii. Treatability Testing Statement of Work. If EPA
10 determines that treatability testing is required, within
11 20 days thereafter, Respondents shall submit a
12 treatability testing statement of work.

13 iii. Treatability Testing Work Plan. Within 15 days of
14 submission of the treatability testing statement of work,
15 Respondents shall submit a treatability testing work
16 plan, including a schedule. If EPA, after consultation
17 with the State and the Trustees, disapproves of or
18 requires revisions to the treatability testing work plan,
19 in whole or in part, Respondents shall amend and submit
20 to EPA a revised treatability testing work plan which is
21 responsive to the directions in all EPA comments, within
22 30 days of receiving EPA's comments.

23 iv. Treatability Study Sampling and Analysis Plan.
24 Within 15 days of the identification of the need for a
25 separate or revised QAPJP or FSP, Respondents shall
26 submit a treatability study sampling and analysis plan.
27 If EPA, after consultation with the State and the
28 Trustees, disapproves of or requires revisions to the
29 treatability study sampling and analysis plan, in whole
30 or in part, Respondents shall amend and submit to EPA a
31 revised treatability study sampling and analysis plan
32 which is responsive to the directions in all EPA
33 comments, within 30 days of receiving EPA's comments.

34 v. Treatability Study Site Health and Safety Plan.
35 Within 10 days of the identification of the need for a
36 revised health and safety plan, Respondents shall submit
37 a treatability study site health and safety plan.

38 vi. Treatability Study Evaluation Report. Within 30
39 days of completion of any treatability testing,
40 Respondents shall submit a treatability study evaluation
41 report as provided in the RI/FS Statement of Work and
42 work plan. If EPA, after consultation with the State and
43 the Trustees, disapproves of or requires revisions to the
44 treatability study report, in whole or in part,
45 Respondents shall amend and submit to EPA a revised
46 treatability study report which is responsive to the
47 directions in all EPA comments, within 10 days of
48 receiving EPA's comments.

1 f. Task V: Development and Screening of Alternatives.

2 Respondents shall develop an appropriate range of waste management
3 options that will be evaluated through the development and
4 screening of alternatives, as provided in the RI/FS Statement of
5 Work and work plan. During the development and screening of
6 alternatives, Respondents shall provide EPA with the following
7 deliverables:

8 i. Memorandum on Remedial Action Objectives. Within 10
9 days of receipt of EPA's baseline risk assessment, Respondents
shall submit a memorandum on remedial action objectives.

10 ii. Memorandum on Development and Preliminary Screening of
11 Alternatives, Assembled Alternatives Screening Results and
12 Final Screening. Within 28 days of submittal of the
13 memorandum on remedial action objectives, Respondents shall
submit a memorandum summarizing the development and screening
of remedial alternatives, including an alternatives array
document as described in the RI/FS Statement of Work.

14 g. Task VI: Detailed Analysis of Alternatives. Respondents
15 shall conduct a detailed analysis of remedial alternatives, as
16 described in the RI/FS Statement of Work and work plan. During the
17 detailed analysis of alternatives, Respondents shall provide EPA
18 with the following deliverables and presentation:

19 i. Report on Comparative Analysis and Presentation to EPA.
20 Within 21 days of submission of a memorandum on the
21 development and screening of remedial alternatives,
22 Respondents shall submit a report on comparative analysis to
23 EPA summarizing the results of the comparative analysis
24 performed between the remedial alternatives. If EPA, after
25 consultation with the State and the Trustees, disapproves of
26 or requires revisions to the report on comparative analysis,
Respondents shall amend and submit to EPA a revised report on
comparative analysis which is responsive to the directions in
all EPA comments, within 10 days of receiving EPA's comments.
Within 7 days of receipt of EPA's comments on comparative
analysis, Respondents shall make a presentation to EPA, the
State and Trustees during which Respondents shall summarize
the findings of the remedial investigation and remedial action
objectives, and present the results of the nine criteria

1 evaluation and comparative analysis, as described in the
2 Statement of Work.

3 ii. Draft Feasibility Study Report. Within 10 days of the
4 presentation, Respondents shall submit a draft feasibility
5 study report which reflects the findings in EPA's baseline
6 risk assessment. Respondents shall refer to Table 6-5 of the
7 RI/FS Guidance for report content and format. If EPA, after
8 consultation with the State and Trustees, disapproves of or
9 requires revisions to the draft feasibility study report in
10 whole or in part, Respondents shall amend and submit to EPA a
11 revised feasibility study report which is responsive to the
12 directions in all EPA comments, within 14 days of receiving
13 EPA's comments. The report as amended, and the administrative
14 record, shall provide the basis for the proposed plan by EPA
15 under Sections 113(k) and 117(a) of CERCLA, 42 U.S.C.
16 §§ 9613(k) and 9617(a), shall document the development and
17 analysis of remedial alternatives.

18 50. EPA reserves the right to comment on, modify and direct
19 changes for all deliverables. Respondents must fully correct all
20 deficiencies and incorporate and integrate all information and
21 comments supplied by EPA either in subsequent or resubmitted
22 deliverables.

23 51. Except as authorized in writing by EPA's Project
24 Coordinator, Respondents shall not proceed further with any
25 subsequent activities or tasks until receiving EPA approval for the
26 following deliverables: RI/FS work plan and sampling and analysis
27 plan, draft remedial investigation report, treatability testing
28 work plan and sampling and analysis plan and draft feasibility
29 study report. While awaiting EPA approval on these deliverables,
30 Respondents shall proceed with all other tasks and activities which
31 may be conducted independently of these deliverables, in accordance
32 with the schedule set forth in this Order.

33 52. Upon receipt of the draft FS report, EPA will evaluate,
34 as necessary, the estimates of the risk to the public and

1 environment that are expected to remain after a particular remedial
2 alternative has been completed.

3 53. For all remaining deliverables not enumerated above in
4 paragraph 49, Respondents shall proceed with all subsequent tasks,
5 activities and deliverables without awaiting EPA approval on the
6 submitted deliverable. EPA reserves the right to stop Respondents
7 from proceeding further, either temporarily or permanently, on any
8 task, activity or deliverable at any point during the RI/FS if
9 Respondents fail to comply with the terms of this Order.

10 54. In the event that Respondents amend or revise a report,
11 plan or other submittal upon receipt of EPA comments, if EPA
12 subsequently disapproves of the revised submittal, or if subsequent
13 submittals do not fully reflect EPA's directions for changes, EPA
14 retains the right to seek stipulated or statutory penalties
15 pursuant to Section XXII; perform its own studies, complete the
16 RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and
17 seek reimbursement from the Respondents for its costs; and/or seek
18 any other appropriate relief.

19 55. In the event that EPA takes over some of the tasks, but
20 not the preparation of the RI/FS report, Respondents shall
21 incorporate and integrate information supplied by EPA into the
22 final RI/FS report.

23 56. Neither failure of EPA to expressly approve or disapprove
24 of Respondents' submissions within a specified time period(s), nor
25 the absence of comments, shall be construed as approval by EPA.
26 Whether or not EPA gives express approval for Respondents'

1 deliverables, Respondents are responsible for preparing
2 deliverables acceptable to EPA.

3
4 X. RI/FS: EPA'S BASELINE RISK ASSESSMENT

5 57. EPA will perform the baseline risk assessment.
6 Respondents shall support EPA in the effort by providing various
7 information to EPA upon request. The major components of the
8 baseline risk assessment include contaminant identification,
9 exposure assessment, toxicity assessment, and human health and
10 ecological risk characterization.

11 58. EPA will provide, after review of the Respondents' Site
12 characterization summary, sufficient information concerning the
13 baseline risks such that the Respondents can begin drafting the
14 feasibility study report and the Memorandum on Remedial Action
15 Objectives. This information will normally be in the form of two
16 or more baseline risk assessment memoranda prepared by EPA. One
17 memorandum will generally include a list of the chemicals of
18 concern for human health and ecological effects and the
19 corresponding toxicity values. Another should list the current and
20 potential future exposure scenarios, exposure assumptions, and
21 exposure point concentrations that EPA plans to use in the baseline
22 risk assessment. The public, including the Respondents, may
23 comment on these memoranda. However, the Agency is obligated to
24 respond only to significant comments that are submitted during the
25 formal public comment period on the proposed plan.

26 59. After considering any significant comments received, EPA
27 will prepare a baseline risk assessment report based on existing

1 data, and the data collected by the Respondents during the Site
2 characterization. EPA, after consulting with the State and the
3 Trustees, will release this report to the public at the same time
4 it releases the final RI report. Both reports will be put into the
5 administrative record for the Site.

6 60. EPA will respond to all significant comments on the
7 memoranda or the baseline risk assessment that are resubmitted
8 during the formal comment period in the Responsiveness Summary of
9 the Record of Decision.

10 11 XI. RI/FS: MODIFICATION OF THE WORK PLAN

12 61. If at any time during the RI/FS process, Respondents
13 identify a need for additional data, a memorandum documenting the
14 need for additional data shall be submitted to the EPA Project
15 Coordinator within 20 days of identification. EPA, after
16 consultation with the State and the Trustees, in its discretion
17 will determine whether the additional data will be collected by
18 Respondents and whether it will be incorporated into reports and
19 deliverables. If additional data collection is determined to be
20 necessary, EPA will adjust affected schedules for submission of
21 deliverables as appropriate, as deemed necessary by the EPA.

22 62. In the event of conditions posing an immediate threat to
23 human health or welfare or the environment, Respondents shall
24 notify EPA and the State immediately. In the event of
25 unanticipated or changed circumstances at the Site, Respondents
26 shall notify the EPA Project Coordinator by telephone within 48
27 hours of discovery of the unanticipated or changed circumstances.

1 In addition to the authorities in the NCP, in the event that EPA
2 determines that the immediate threat or the unanticipated or
3 changed circumstances warrant changes in the work plan, EPA shall
4 modify or amend the work plan in writing accordingly if EPA
5 determines that such actions are necessary for a complete RI/FS.
6 Respondents shall perform the work plan as modified or amended.

7 63. EPA may determine that in addition to tasks defined in
8 the initially approved work plan, other additional work may be
9 necessary to accomplish the objectives of the RI/FS as set forth in
10 the Statement of Work for this RI/FS. EPA may require that the
11 Respondents perform these response actions in addition to those
12 required by the initially approved work plan, including any
13 approved modifications. Respondents shall confirm their
14 willingness to perform the additional work in writing to EPA within
15 10 business days of receipt of the EPA request or Respondents shall
16 invoke dispute resolution. Subject to resolution of any dispute by
17 dispute resolution as provided in Section XXI of this Order or by
18 agreement, Respondents shall implement the additional tasks which
19 EPA determines are necessary. The additional work shall be
20 completed according to the standards, specifications, and schedule
21 set forth or approved by EPA in a written modification to the work
22 plan or written work plan supplement. EPA reserves the right to
23 conduct the work itself at any point, to seek reimbursement from
24 Respondents, and/or to seek any other appropriate relief.

1 XII. RI/FS: FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT,
2 RECORD OF DECISION, ADMINISTRATIVE RECORD

3 64. EPA retains the responsibility for the release to the
4 public of the RI/FS report. EPA retains responsibility for the
5 preparation and release to the public of the proposed plan and
6 record of decision in accordance with CERCLA and the NCP, and in
7 consultation with the State and the Trustees.

8 65. EPA shall provide Respondents with the final RI/FS
9 report, proposed plan and record of decision.

10 66. EPA will determine the contents of the administrative
11 record file for selection of the remedial action. Respondents must
12 submit to EPA documents developed during the course of the RI/FS
13 upon which selection of the response action may be based.
14 Respondents shall provide copies of plans, task memoranda including
15 documentation of field modifications, recommendations for further
16 action, quality assurance memoranda and audits, raw data, field
17 notes, laboratory analytical reports and other reports in their
18 possession. Respondents must additionally submit any previous
19 studies conducted under state, local or other federal authorities
20 relating to selection of the response action, and all written
21 communications between Respondents and state, local or other
22 federal authorities concerning selection of the response action.
23 At EPA's discretion, Respondents may establish a community
24 information repository at or near the Site, to house one copy of
25 the administrative record.
26

XIII. EARLY ACTION: WORK TO BE PERFORMED

67. Respondents shall evaluate and design the following Early Action: The diversion of clean surface waters around waste rock and tailings (Meadow Creek), and the collection, storage and treatment of contaminated waters from waste rock, tailings (Meadow Creek), adit discharges and seeps located in the Meadow/Blackbird and Bucktail Creek drainages; and the removal of contaminated sediments/tailings from depositional areas in Blackbird Creek. The removal action shall be designed to restore or support restoration of water quality and aquatic biota in Panther Creek below the confluence of Blackbird Creek to levels capable of supporting all life stages of anadromous and resident salmonids, and restore or support restoration of water quality and aquatic biota in Big Deer Creek below the confluence of the South Fork of Big Deer Creek to levels capable of supporting all life stages of resident salmonids.

68. Respondents shall conduct activities set forth in the attached Early Action Statement of Work (Early Action SOW) and submit deliverables as described below and in accordance with the Early Action SOW schedule. All such work shall be conducted in accordance with CERCLA, the NCP, and EPA guidances. EPA will assist Respondents to identify such guidance upon request. All work performed under this Order shall be in accordance with the schedules herein, and in full accordance with the standards, specifications, and other requirements of the work plan, sampling and analysis plan, analysis of alternatives (AOA) report, preliminary design report and final design report as initially approved or modified by EPA, and as may be amended or modified by

1 EPA from time to time. Following approval or modification by EPA,
2 all deliverables as listed below are incorporated by reference
3 herein. For the purposes of this Order, day means calendar day
4 unless otherwise noted in the Order.

5 a. Task I: Identify Data Needs and Gaps for Design and Early
6 Action Implementation.

7 i. Phase I (includes: Meadow Creek and Bucktail Creek clean
8 water ditches; lower Meadow Creek dam; Hawkeye Gulch wasterock
9 removal; Mill Creek dam; Bucktail Creek wasterock
10 stabilization for runoff; and Blackbird Creek depositional
11 areas). Data necessary to perform the design shall be
12 collected by the Respondents in the Fall of 1994 for
13 inclusion in the preliminary design report described in the
Early Action SOW. A scoping meeting with EPA, the State and
Trustees, shall be held to discuss data needs and gaps for the
design and implementation of the Early Action. Following the
scoping meeting the Respondents shall submit a draft work plan
and sampling and analysis plan to address data needs and gaps.

14 (1) Work Plan/Sampling and Analysis Plan. Within 7 days
15 after the Respondents sign the Order, Respondents shall
16 submit to EPA the work plan and field sampling plan to address
17 the data needs identified in the attached Early Action SOW and
18 scoping meeting with EPA. This plan shall consist of a field
19 sampling plan (FSP) and a quality assurance project plan
20 (QAPjP) as described in the Statement of Work for the RI/FS
and EPA guidances. If EPA, after consultation with the State
and Trustees, disapproves of or requires revisions to the
sampling and analysis plan, in whole or in part, Respondents
shall amend and submit to EPA a revised sampling and analysis
plan which is responsive to the directions in all EPA
comments, within 1 day of receiving EPA's comments.

21 (2) Site Health and Safety Plan. Within 7 days after
22 the Respondents sign the Order, Respondents shall submit to
23 EPA a health and safety plan (HSP) that complies with the
requirements in the RI/FS Statement of Work. The health and
safety plan developed for the 1993 West Fork Tailings Dam may
be used and amended as necessary.

24 (3) Quality Assurance and Sampling. If sampling and
25 analyses are performed pursuant to this Order and the Early
26 Action SOW, the Respondents shall conform to EPA direction,
approval, and guidance regarding sampling, quality
assurance/quality control (QA/QC), data validation, and chain-
of-custody procedures. Respondents shall ensure that the
27 laboratory used to perform the analyses participates in a

1 QA/QC program that complies with the appropriate EPA guidance.
2 Respondents shall follow the following documents, as
3 appropriate, as guidance for QA/QC and sampling: "Quality
4 Assurance/Quality Control Guidance for Removal Activities:
5 Sampling QA/QC Plan and Data Validation Procedures", OSWER
6 Directive Number 9360.4-01; "Environmental Response Team
7 Standard Operating Procedures", OSWER Directive Numbers
8 9360.4-02 through 9360.4-08; Data Quality Objectives for
9 Superfund, OSWER Directive Number 9355.9-01, September 1993.

6 (a) Upon request by EPA, Respondents shall have such a
7 laboratory analyze samples submitted by EPA for quality-
8 assurance monitoring. Respondents shall provide to EPA
9 the quality assurance/quality control procedures followed
10 by all sampling teams and laboratories performing data
11 collection and/or analysis.

10 ii. Phase II (includes the other items identified in the
11 Early Action SOW). Data necessary to perform the design shall
12 be collected as soon as the Site is accessible in the
13 Spring/Early Summer of 1995 for inclusion in the preliminary
14 design report described in the Early Action SOW. Based on the
15 winter snowpack, EPA, in consultation with the Respondents,
16 State, and Trustees, will determine the date field work shall
17 be initiated and completed. A scoping meeting with EPA, the
18 State and Trustees, shall be held to discuss data needs and
19 gaps for the design and implementation of the Early Action.
20 Following the scoping meeting the Respondents shall submit a
21 draft work plan and sampling and analysis plan to address data
22 needs and gaps.

16 (1) Work Plan/Sampling and Analysis Plan. Within 25
17 days after the Respondents submit the draft AOA report,
18 Respondents shall submit to EPA the work plan and field
19 sampling plan to address the data needs identified in the
20 attached Early Action SOW and scoping meeting with EPA. This
21 plan shall consist of a field sampling plan (FSP) and a
22 quality assurance project plan (QAPjP) as described in the
23 Statement of Work for the RI/FS and EPA guidances. If EPA,
24 after consultation with the State and Trustees, disapproves of
25 or requires revisions to the sampling and analysis plan, in
26 whole or in part, Respondents shall amend and submit to EPA a
27 revised sampling and analysis plan which is responsive to the
28 directions in all EPA comments, within 21 days of receiving
EPA's comments.

24 (2) Site Health and Safety Plan. Within 25 days after
25 Respondents submit the draft AOA report, Respondents shall
26 submit to EPA a health and safety plan (HSP) that complies
27 with the requirements in the RI/FS Statement of Work. The
28 health and safety plan developed for the 1993 West Fork
Tailings Dam may be used and amended as necessary.

1 (3) Quality Assurance and Sampling. If sampling and
2 analyses are performed pursuant to this Order and the Early
3 Action SOW, the Respondents shall conform to EPA direction,
4 approval, and guidance regarding sampling, quality
5 assurance/quality control (QA/QC), data validation, and chain-
6 of-custody procedures. Respondents shall ensure that the
7 laboratory used to perform the analyses participates in a
8 QA/QC program that complies with the appropriate EPA guidance.
9 Respondents shall follow the following documents, as
10 appropriate, as guidance for QA/QC and sampling: "Quality
11 Assurance/Quality Control Guidance for Removal Activities:
12 Sampling QA/QC Plan and Data Validation Procedures", OSWER
13 Directive Number 9360.4-01; "Environmental Response Team
14 Standard Operating Procedures", OSWER Directive Numbers
15 9360.4-02 through 9360.4-08; Data Quality Objectives for
16 Superfund, OSWER Directive Number 9355.9-01, September 1993.

17 (a) Upon request by EPA, Respondents shall have such a
18 laboratory analyze samples submitted by EPA for quality-
19 assurance monitoring. Respondents shall provide to EPA
20 the quality assurance/quality control procedures followed
21 by all sampling teams and laboratories performing data
22 collection and/or analysis.

23 b. Task II: Analysis of Alternatives. Within 100 days of
24 the effective date of the Order Respondents shall submit the AOA
25 report. If EPA, after consultation with the State and Trustees,
26 disapproves of or requires revisions to the AOA report, in whole or
27 in part, Respondents shall amend and submit to EPA a revised report
28 which is responsive to the directions in all EPA comments, within
29 21 days of receiving EPA's comments.

30 c. Task III: Design

31 i. Phase I Design.

32 (1) Preliminary Design Report (25% Design). Within 30 days
33 after the submittal of the draft AOA report, Respondents shall
34 submit to EPA for approval a preliminary design report for
35 areas identified in the Early Action SOW schedule. If EPA,
36 after consultation with the State and Trustees, disapproves of
37 or requires revisions to the preliminary design report, in
38 whole or in part, Respondents shall address EPA's comments in
39 the 25% design or a revised preliminary design report, to be
40 determined by EPA. If EPA requires revisions to

1 the preliminary design report, in whole or in part,
2 Respondents shall amend and submit to EPA a revised report
3 which is responsive to the directions in all EPA comments,
4 within 15 days of receiving EPA's comments.

5 (2) 90% Design. Within 67 days of receiving EPA's comments
6 on the 25% design, Respondent shall submit to EPA the 90%
7 design. If EPA, after consultation with the State and
8 Trustees, disapproves of or requires revisions to the 90%
9 design, in whole or in part, Respondents shall amend and
10 submit to EPA a revised design which is responsive to the
11 directions in all EPA comments, within 10 days of receiving
12 EPA's comments. EPA will work with the Respondents to ensure
13 that the complete design is approved by EPA on or before June
14 16, 1995.

15 ii. Phase II Design.

16 (1) Preliminary Design Report (25% Design). Within 30 days
17 after the completion of the field investigation, including lab
18 analysis, as set forth in the Early Action SOW schedule,
19 Respondents shall submit to EPA for approval a preliminary
20 design report for performing the alternative chosen by EPA, in
21 consultation with the State and Trustees, from the AOA report.
22 If EPA, after consultation with the State and Trustees,
23 disapproves of or requires revisions to the preliminary design
24 report, in whole or in part, Respondents shall address EPA's
25 comments in the 25% design or a revised preliminary design
26 report, to be determined by EPA. If EPA requires revisions to
27 the preliminary design report, in whole or in part,
28 Respondents shall amend and submit to EPA a revised report
which is responsive to the directions in all EPA comments,
within 15 days of receiving EPA's comments.

(2) 90% Design. Within 90 days of receiving EPA's comments
on the 25% design, Respondent shall submit to EPA the 90%
design. If EPA, after consultation with the State and
Trustees, disapproves of or requires revisions to the 90%
design, in whole or in part, Respondents shall amend and
submit to EPA a revised design which is responsive to the
directions in all EPA comments, within 15 days of receiving
EPA's comments.

d. Task IV: Operations and Maintenance Plan. For both Phase
I and II designs, Respondents shall submit a preliminary evaluation
for operations and maintenance of the Early Action with the
preliminary design report. At a minimum, the operations and
maintenance plan shall consist of monitoring and maintaining the

1 systems to collect, store, transport and treat contaminated waters
2 from the Bucktail and Meadow/Blackbird Creek, and any systems
3 constructed to separate contaminated waters from clean waters in
4 either drainage, as set forth in the Early Action SOW and final
5 design report. Upon EPA approval, Respondents shall provide EPA
6 with documentation of all arrangements in the operations and
7 maintenance plan to be submitted with the 90% design.

8 e. Task VI: Post Removal Site Control. For both Phase I and
9 II designs, Respondents shall submit a proposal for post-removal
10 Site control with the preliminary design report. To the extent
11 practicable, the Respondents shall provide for such post-removal
12 Site control consistent with Section 300.415(k) of the NCP and
13 OSWER Directive 9360.2-02. Upon EPA approval, Respondents shall
14 implement such controls and shall provide EPA with documentation of
15 all post-removal Site control arrangements.

16 69. EPA reserves the right to comment on, modify and direct
17 changes for all deliverables. Respondents must fully correct all
18 deficiencies and incorporate and integrate all information and
19 comments supplied by EPA either in subsequent or resubmitted
20 deliverables.

21 70. Except as authorized in writing by EPA's Project
22 Coordinator, Respondents shall not proceed further with any
23 subsequent activities or tasks until receiving EPA approval for the
24 following deliverables: the Early Action work plan/sampling and
25 analysis plan, AOA report, preliminary design report and 90% design
26 report. While awaiting EPA approval on these deliverables,
27 Respondents shall proceed with all other tasks and activities which

1 may be conducted independently of these deliverables, in accordance
2 with the schedule set forth in this Order.

3 71. For all remaining deliverables not enumerated above in
4 paragraph 68, Respondents shall proceed with all subsequent tasks,
5 activities and deliverables without awaiting EPA approval on the
6 submitted deliverable. EPA reserves the right to stop Respondents
7 from proceeding further, either temporarily or permanently, on any
8 task, activity or deliverable at any point during the Early Action
9 if Respondents fail to comply with the terms of this Order.

10 72. In the event that Respondents amend or revise a report,
11 plan or other submittal upon receipt of EPA comments, if EPA
12 subsequently disapproves of the revised submittal, or if subsequent
13 submittals do not fully reflect EPA's directions for changes, EPA
14 retains the right to seek stipulated or statutory penalties
15 pursuant to Section XXII; perform its own studies, and seek
16 reimbursement from the Respondents for its costs; and/or seek any
17 other appropriate relief.

18 73. Neither failure of EPA to expressly approve or disapprove
19 of Respondents' submissions within a specified time period(s), nor
20 the absence of comments, shall be construed as approval by EPA.
21 Whether or not EPA gives express approval for Respondents'
22 deliverables, Respondents are responsible for preparing
23 deliverables acceptable to EPA.

24 25 XIV. QUALITY ASSURANCE

26 74. Respondents shall assure that work performed, samples
27 taken and analyses conducted conform to the requirements of the

1 RI/FS and Early Action Statements of Work, the QAPjP and guidances
2 identified therein. Respondents will assure that field personnel
3 used by Respondents are properly trained in the use of field
4 equipment and in chain of custody procedures.

5
6 XV. PROGRESS REPORTS AND MEETINGS

7 75. Respondents shall make presentations at, and participate
8 in, meetings at the request of EPA during the initiation, conduct,
9 and completion of the Early Action and RI/FS. In addition to
10 discussion of the technical aspects of the Early Action and RI/FS,
11 topics will include anticipated problems or new issues. Meetings
12 will be scheduled at EPA's discretion, but EPA will, to the extent
13 feasible, to provide advance notice to Respondents 7 days prior to
14 the meeting date.

15 76. In addition to the deliverables set forth in this Order,
16 Respondents shall provide to EPA and the State monthly progress
17 reports for (a) the RI/FS by the 10th day of the following month,
18 and (b) the Removal Action by the 14th day of the following month.
19 At a minimum, with respect to the preceding month, these progress
20 reports shall (1) describe the actions which have been taken to
21 comply with this Order during that month, (2) include all results
22 of sampling and tests and all other data received by the
23 Respondents, (3) describe work planned for the next month with
24 schedules relating such work to the overall project schedule for
25 RI/FS and Early Action completion and (4) describe all problems
26 encountered and any anticipated problems, any actual or anticipated
27 delays, and solutions developed and implemented to address any

1 actual or anticipated problems or delays. These progress reports
2 shall at a minimum contain the factual information normally
3 included in pollution reports and shall otherwise serve the removal
4 response reporting functions of pollution reports.

5
6 XVI. SAMPLING, ACCESS, AND DATA AVAILABILITY/ADMISSIBILITY

7 77. All results of sampling, tests, modeling or other data
8 (including raw data) generated by Respondents, or on Respondents'
9 behalf, during implementation of this Order, shall be submitted to
10 EPA and the State in the subsequent monthly progress report as
11 described in Section XV of this Order. EPA will make available to
12 the Respondents validated data generated by EPA unless it is exempt
13 from disclosure by any federal or state law or regulation.

14 78. Respondents will verbally notify EPA and the State at
15 least 15 days prior to conducting significant field events as
16 described in the RI/FS and Early Action Statements of Work, work
17 plans, sampling and analysis plans or design reports. At EPA's
18 verbal or written request, or the request of EPA's oversight
19 assistant, Respondents shall allow split or duplicate samples to be
20 taken by EPA (and its authorized representatives) of any samples
21 collected by the Respondents in implementing this Order. All split
22 samples of Respondents shall be analyzed by the methods identified
23 in the QAPjP; EPA will make the validated results available to
24 Respondents upon request.

25 79. At all reasonable times, EPA and the State and their
26 authorized representatives shall have the authority to enter and
27 freely move about all property at the Site and off-Site areas where

1 work, if any, is being performed, for the purposes of inspecting
2 conditions, activities, the results of activities, records,
3 operating logs, and contracts related to the Site or Respondents
4 and its contractor pursuant to this Order; reviewing the progress
5 of the Respondents in carrying out the terms of this Order;
6 conducting tests as EPA or its authorized representatives deem
7 necessary; using a camera, sound recording device or other
8 documentary type equipment; and verifying the data submitted to EPA
9 by the Respondents. The Respondents shall allow these persons to
10 inspect and copy all records, files, photographs, documents,
11 sampling and monitoring data, and other writings related to work
12 undertaken in carrying out this Order. Nothing herein shall be
13 interpreted as limiting or affecting EPA's right of entry or
14 inspection authority under federal law.

15 80. The Respondents may assert a claim of business
16 confidentiality covering part or all of the information submitted
17 to EPA pursuant to the request of EPA or the terms of this Order
18 under 40 C.F.R. § 2.203, provided such claim is allowed by Section
19 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be
20 asserted in the manner described by 40 C.F.R. § 2.203(b) and
21 substantiated at the time the claim is made. Information
22 determined to be confidential by EPA will be given the protection
23 specified in 40 C.F.R. Part 2. If no such claim accompanies the
24 information when it is submitted to EPA, it may be made available
25 to the public by EPA or the State without further notice to the
26 Respondents. Respondents agree not to assert confidentiality
27 claims with respect to any data related to Site conditions,

1 sampling, or monitoring. This Section XVI shall not apply to
2 documents which constitute attorney work product or any documents
3 or other evidence of communications which are subject to the
4 attorney/client privilege under federal law. With respect to any
5 documents not provided, Respondents shall provide a log of such
6 documents that provides a general description of the documents
7 which are claimed to be exempt from production.

8 81. In entering into this Order, Respondents waive any
9 objections to any data gathered, generated, or evaluated by EPA or
10 Respondents in the performance or oversight of the work that has
11 been verified according to the quality assurance/quality control
12 (QA/QC) procedures required by the Order or any EPA-approved work
13 plans or sampling and analysis plans, and is included in a report
14 submitted by Respondents under this Order. If Respondents object
15 to any other data relating to the RI/FS and Early Action,
16 Respondents shall submit to EPA a report that identifies and
17 explains its objections, describes the acceptable uses of the data,
18 if any, and identifies any limitations to the use of the data. The
19 report must be submitted to EPA within 15 days of the monthly
20 progress report containing the data.

21 82. If the Site, or the off-Site area that is to be used for
22 access within the scope of the RI/FS and Early Action, is owned in
23 whole or in part by parties other than those bound by this Order,
24 Respondents will obtain, or use its best efforts to obtain, Site
25 access agreements from the present owner(s) within 30 days of the
26 effective date of this Order. Such agreements shall provide access
27 for EPA, its contractors and oversight officials, the State and its

1 contractors, and the Respondents or its authorized representatives,
2 and such agreements shall specify that Respondents are not EPA's or
3 the State's representative with respect to liability associated
4 with Site activities. Copies of such agreements shall be provided
5 to EPA prior to Respondents' initiation of field activities.
6 Respondents' best efforts shall include providing reasonable
7 compensation to any off-Site property owner. If access agreements
8 are not obtained within the time referenced above, Respondents
9 shall immediately notify EPA of its failure to obtain access. EPA
10 may obtain access for the Respondents, perform those tasks or
11 activities with EPA contractors, or terminate the Order in the
12 event that Respondents cannot obtain access agreements. In the
13 event that EPA performs those tasks or activities with EPA
14 contractors and does not terminate the Order, Respondents shall
15 perform all other activities not requiring access to that site, and
16 shall reimburse EPA for all costs incurred in performing such
17 activities. Respondents additionally shall integrate the results
18 of any such tasks undertaken by EPA into its reports and
19 deliverables. Furthermore, the Respondents agree to indemnify the
20 U.S. Government as specified in Section XXIII of this Order.
21 Respondents also shall reimburse EPA for all costs and attorney
22 fees incurred by the United States to obtain access for the
23 Respondents pursuant to this paragraph.

24
25 XVII. OFF-SITE SHIPMENTS

26 83. All hazardous substances, pollutants, or contaminants
27 removed off-Site pursuant to this Order for treatment, storage, or

1 disposal shall be treated, stored or disposed of at a facility in
2 compliance with, as determined by EPA, 42 U.S.C. Section
3 9621(d)(3), and the "Revised Procedures for Implementing Off-Site
4 Response Actions," OSWER Directive Number 9834.11,
5 November 13, 1987. Regional offices will provide information on
6 the acceptability of a facility under Section 121(d)(3) of CERCLA,
7 42 U.S.C. § 9621(d)(3), and the above directive.

8 84. Respondents shall, prior to any off-Site shipment of
9 hazardous substances from the Site to an out-of-state waste
10 management facility, provide written notification to the
11 appropriate state environmental official in the receiving state and
12 to EPA's Project Coordinator of such shipment of hazardous
13 substances. However, the notification of shipments shall not apply
14 to any such off-Site shipments when the total volume of such
15 shipments will not exceed 10 cubic yards.

16 (a) The notification shall be in writing, and shall include
17 the following information, where available: (1) the name and
18 location of the facility to which the hazardous substances are
19 to be shipped; (2) the type and quantity of the hazardous
20 substances to be shipped; (3) the expected schedule for the
21 shipment of the hazardous substances; and (4) the method of
22 transportation. Respondents shall notify the receiving state
23 of major changes in the shipment plan, such as a decision to
24 ship the hazardous substances to another facility within the
25 same state, or to a facility in another state.

26 (b) The identity of the receiving facility and state will be
27 determined by Respondents following the award of the contract
28 for the RI/FS and Early Action. Respondents shall provide all
relevant information, including information under the
categories noted in subparagraph (a) above, on the off-Site
shipments, as soon as practical after the award of the
contract and before the hazardous substances are actually
shipped.

1 XVIII. COMPLIANCE WITH OTHER LAWS

2 85. Respondents shall perform all actions required pursuant
3 to this Order in accordance with all applicable local, state, and
4 federal laws and regulations except as provided in CERCLA Section
5 121(e), 42 U.S.C. § 9621(e), and 40 C.F.R. § 300.415(i). Permits
6 shall not be required for any on-Site response actions. In
7 accordance with 40 C.F.R. § 300.415(i), all on-Site actions
8 required pursuant to this Order shall, to the extent practicable,
9 as determined by EPA, in consultation with the State, considering
10 the exigencies of the situation, attain applicable or relevant and
11 appropriate requirements (ARARs) under federal environmental or
12 state environmental or facility siting laws. See "The Superfund
13 Removal Procedures: Guidance on the Consideration of ARARs During
14 Removal Actions", OSWER Directive No.9360.3-02, August 1991.

15
16 XIX. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

17 86. If any incident, or change in Site conditions, during the
18 actions conducted pursuant to this Order causes or threatens to
19 cause an additional release of hazardous substances from the Site
20 or an endangerment to the public health, welfare, or the
21 environment, the Respondents shall immediately take all appropriate
22 action. The Respondents shall take these actions in accordance
23 with all applicable provisions of this Order, including, but not
24 limited to, the health and safety plan, in order to prevent, abate,
25 or minimize such release or endangerment caused or threatened by
26 the release. Respondents shall also immediately notify EPA's
27 Project Coordinator or, in the event of her unavailability, shall

1 notify the EPA Region 10, Site Response Section, (206) 553-6901 of
2 the incident or Site conditions.

3 87. In addition, in the event of any unanticipated release of
4 a hazardous substance from the Site, Respondents shall immediately
5 notify EPA'S Project Coordinator and the National Response Center
6 at telephone number (800) 424-8802. Respondents shall submit a
7 written report to EPA within seven days after each such release,
8 setting forth the events that occurred and the measures taken or to
9 be taken to mitigate any release or endangerment caused or
10 threatened by the release and to prevent the reoccurrence of such
11 a release. This reporting requirement is in addition to, not in
12 lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C.
13 § 9603(c), and Section 304 of the Emergency Planning and Community
14 Right-To-Know Act of 1986, 42 U.S.C. § 11001, et. seq.

15
16 XX. RECORD PRESERVATION

17 88. All records and documents in Respondents' possession that
18 relate in any way to work performed under this Order, or relate to
19 hazardous substances found on or released from the Site shall be
20 preserved for 10 years after construction of any remedial action
21 commences following issuance of the record of decision for the
22 Site. The Respondents shall acquire and retain copies of all
23 documents that relate to the Site and are in the possession of its
24 employees, agents, accountants, contractors, or attorneys. After
25 this 10 year period, the Respondents shall notify EPA at least 90
26 days before the documents are scheduled to be destroyed. If EPA
27 requests that the documents be saved, the Respondents shall, at no

1 cost to EPA, give EPA the documents or copies of the documents.
2 Respondents shall provide copies of any logs of documents which are
3 subject to the attorney/client privilege under federal law that are
4 maintained pursuant to Section XVI of this Order.
5

6 XXI. DISPUTE RESOLUTION

7 89. Any disputes concerning activities or deliverables
8 required under this Order, excluding the baseline risk assessment,
9 shall be resolved as follows: If the Respondents object to any EPA
10 notice of disapproval or requirement made pursuant to this Order,
11 Respondents shall notify EPA's Project Coordinator in writing of
12 its objections within 14 days of receipt of the disapproval notice
13 or requirement. Respondents' written objections shall define the
14 dispute, state the basis of Respondents' objections, and be sent
15 certified mail, return receipt requested. EPA and the Respondents
16 then have an additional 14 days to reach agreement. If an
17 agreement is not reached within 14 days, Respondents may request a
18 determination by EPA's Superfund Remedial Branch Chief. The Branch
19 Chief's determination is EPA's final decision. Respondents shall
20 proceed in accordance with EPA's final decision regarding the
21 matter in dispute, regardless of whether Respondents agree with the
22 decision. If the Respondents do not agree to perform or do not
23 actually perform the work in accordance with EPA's final decision,
24 EPA reserves the right in its sole discretion to conduct the work
25 itself, to seek reimbursement from the Respondents, to seek
26 enforcement of the decision, to seek stipulated penalties, and/or
27 to seek any other appropriate relief. No EPA decision made

1 pursuant to this section shall constitute a final agency action
2 giving rise to judicial review.

3 90. Respondents are not relieved of their obligations to
4 perform and conduct activities and submit deliverables on the
5 schedule set forth in the work plan or design plans, while a matter
6 is pending in dispute resolution. The invocation of dispute
7 resolution does not stay stipulated penalties under this Order,
8 pursuant to Paragraph 98.

9
10 XXII. DELAY IN PERFORMANCE/STIPULATED AND STATUTORY PENALTIES

11 91. Subject to the dispute resolution and force majeure
12 provisions in Section XXI and XXIII of this Order, Respondents
13 shall pay stipulated penalties as set forth in this Section XXII.
14 For each day that the Respondents fail to complete a deliverable in
15 a timely manner or fail to produce a deliverable of acceptable
16 quality, or otherwise fail to perform in accordance with the
17 requirements of this Order, Respondents shall be liable for
18 stipulated penalties. Penalties begin to accrue on the day that
19 performance is due or a violation occurs, and extend through the
20 period of correction. Where a revised submission by Respondents is
21 required, stipulated penalties shall continue to accrue until a
22 satisfactory deliverable is produced. EPA will provide written
23 notice for violations that are not based on timeliness. Penalties
24 for violations involving a failure to meet a deadline shall begin
25 to accrue on the day performance is due. Penalties for violations
26 involving failure to otherwise comply with this Order shall begin
27 to accrue on the date Respondents receive written notice from EPA

1 of the failure to comply. Even if violations are simultaneous,
2 separate penalties may accrue. Payment shall be due within 30 days
3 of receipt of a demand letter from EPA, except as provided in
4 Paragraph 98.

5 92. Respondents shall pay interest on the unpaid balance,
6 which shall begin to accrue at the end of the 30-day period when
7 payment is due, at the rate established by the Department of
8 Treasury pursuant to 30 U.S.C. § 3717. Respondents shall further
9 pay a handling charge of one percent, to be assessed at the end of
10 each 31 day period, and a six percent per annum penalty charge, to
11 be assessed if the penalty is not paid in full within 90 days after
12 it is due.

13 93. Respondents shall make all payments by forwarding a check
14 to:

15 U.S. Environmental Protection Agency
16 Superfund Accounting
17 P.O. Box 360903M
Pittsburgh, PA 15251

18 Checks should identify the name of the Site, (Blackbird Mine),
19 the Site identification number (10-P1), the account number, and the
20 title of this Order. A copy of the check and/or transmittal letter
21 shall be forwarded to the EPA Project Coordinator.

22 94. For the following major deliverables or events,
23 stipulated penalties shall accrue in the amount of \$2500 per day,
24 per violation, for the first seven days of noncompliance; \$5000 per
25 day, per violation, for the 8th through 14th day of noncompliance;
26 \$7500 per day, per violation, for the 15th day through the 30th

1 day; and \$10,000 per day per violation for all violations lasting
2 beyond 30 days.

- 3 a) An original and any revised work plan.
- 4 b) An original and any revised sampling and analysis plan.
- 5 c) An original and any revised remedial investigation
6 report.
- 7 d) An original and any revised feasibility study report.
- 8 e) An original and any revised AOA report.
- 9 f) An original and any revised preliminary design report.
- 10 g) An original and any revised 90% design report.
- 11 h) An original and any revised operations and maintenance
12 plan.
- 13 i) A failure to timely perform the work required under the
14 RI/FS and Early Action Statements of Work, the AOA
15 report, or work plan approved by EPA pursuant to this
16 Order.
- 17 j) A failure to implement and complete the Early Action as
18 required under this Order.

19 95. For the following interim deliverables or events,
20 stipulated penalties shall accrue in the amount of \$1000 per day,
21 per violation, for the first week of noncompliance; \$2000 per day,
22 per violation, for the 8th through 14th day of noncompliance; \$3000
23 per day, per violation, for the 15th day through the 30th day of
24 noncompliance; and \$5000 per day per violation for all violations
25 lasting beyond 30 days.

- 26 a) Technical memorandum on modeling of site
27 characteristics.
- 28 b) Preliminary site characterization summary.
- 29 c) Summary of RI data.
- 30 d) Identification of candidate technologies memorandum.

- e) Memorandum on remedial action objectives.
- f) Memoranda on development and preliminary screening of alternatives, assembled alternatives screening results, and final screening.
- g) Comparative analysis report.

96. For the monthly progress reports, stipulated penalties shall accrue in the amount of \$250 per day, per violation, for the first week of noncompliance; \$500 per day, per violation, for the 8th through 14th day of noncompliance; \$1000 per day, per violation, for the 15th day through the 30th day; and \$3000 per day, per violation, for all violations lasting beyond 30 days.

97. Respondents may dispute EPA's right to the assessed amount of penalties by invoking the dispute resolution procedures under Section XXI herein. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondents do not prevail upon resolution, all penalties shall be due to EPA within 30 days of resolution of the dispute. If Respondents prevail upon resolution, no penalties shall be paid.

98. In the event that EPA provides for corrections to be reflected in the next deliverable and does not require resubmission of that deliverable, stipulated penalties that accrue for that interim deliverable shall cease to accrue on the date of such decision by EPA.

99. a. The stipulated penalties provisions do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of the Respondents' failure to comply with this Order. Payment of stipulated penalties does not alter Respondents' obligation to complete performance under this Order.

1 b. If Respondents fail to pay stipulated penalties when
2 due, the United States may institute proceedings to collect the
3 penalties, as well as interest. The stipulated penalties
4 established in this Order shall be the exclusive mechanism for the
5 assessment and collection of penalties for noncompliance with the
6 provisions subject to stipulated penalties, unless EPA elects, in
7 lieu of demanding such stipulated penalties, to seek civil
8 penalties under CERCLA.

9
10 XXIII. FORCE MAJEURE

11 100. "Force majeure", for purposes of this Order, is defined
12 as any event arising from causes entirely beyond the reasonable
13 control of the Respondents and of any entity controlled by
14 Respondents, including their contractors and subcontractors, that
15 delays the timely performance of any obligation under this Order
16 notwithstanding Respondents' best efforts to avoid the delay. The
17 requirement that the Respondents exercise "best efforts to avoid
18 the delay" includes using best efforts to anticipate any potential
19 force majeure event and best efforts to address the effects of any
20 potential force majeure event (1) as it is occurring and (2)
21 following the potential force majeure event, such that the delay is
22 minimized to the greatest extent practicable. Examples of events
23 that are not force majeure events include, but are not limited to:
24 increased costs or expenses of any work to be performed under this
25 Order; the financial difficulty of Respondents to perform such
26 work; or difficulties associated with securing a contractor to
27 perform any portion of the work.

1 101. If any event occurs or has occurred that may delay the
2 performance of any obligation under this Order, whether or not
3 caused by a force majeure event, Respondents shall notify by
4 telephone EPA's Project Coordinator or, in her absence, Superfund
5 Remedial Branch Chief, EPA Region 10, within 48 hours of when the
6 Respondents knew or should have known that the event might cause a
7 delay. Within five business days thereafter, Respondents shall
8 provide in writing the reasons for the delay; the anticipated
9 duration of the delay; all actions taken or to be taken to prevent
10 or minimize the delay; a schedule for implementation of any
11 measures to be taken to mitigate the effect of the delay; and a
12 statement as to whether, in the opinion of Respondents, such event
13 may cause or contribute to an endangerment to public health,
14 welfare or the environment. Respondents shall exercise best
15 efforts to avoid or minimize any delay and any effects of a delay.
16 Failure to comply with the above requirements shall preclude
17 Respondents from asserting any claim of force majeure.

18 102. If EPA agrees that the delay or anticipated delay is
19 attributable to force majeure, the time for performance of the
20 obligations under this Order that are directly affected by the
21 force majeure event shall be extended by agreement of the parties,
22 pursuant to Section XXX of this Order, for a period of time not to
23 exceed the actual duration of the delay caused by the force majeure
24 event. An extension of the time for performance of the obligation
25 directly affected by the force majeure event shall not, of itself,
26 extend the time for performance of any subsequent obligation.

1 103. If EPA does not agree that the delay or anticipated delay
2 has been or will be caused by a force majeure event, or does not
3 agree with Respondents on the length of the extension, the issue
4 shall be subject to the dispute resolution procedures set forth in
5 Section XXI of this Order. In any such proceeding, to qualify for
6 a force majeure defense, Respondents shall have the burden of
7 demonstrating that the delay or anticipated delay has been or will
8 be caused by a force majeure event, that the duration of the delay
9 was or will be warranted under the circumstances, that Respondents
10 did exercise or are exercising due diligence by using their best
11 efforts to avoid and mitigate the effects of the delay, and that
12 Respondents complied with the requirements of paragraph 102.

13 104. Should Respondents carry the burden set forth in
14 paragraph 102, the delay at issue shall be deemed not to be a
15 violation of the affected obligation of this Order.

16
17 XXIV. REIMBURSEMENT OF OVERSIGHT COSTS

18 105. Following the issuance of this Order, EPA shall submit
19 to the Respondents on a periodic basis an accounting of all
20 oversight costs incurred after the effective date of this Order by
21 the EPA with respect to this RI/FS and Early Action. Oversight
22 costs may include, but are not limited to, costs incurred by EPA in
23 overseeing Respondents' implementation of the requirements of this
24 Order and activities performed by the EPA as part of the RI/FS,
25 Early Action and community relations, including any costs incurred
26 while obtaining access. Costs shall include all direct and
27 indirect costs, including, but not limited to, time and travel

1 costs of EPA personnel and associated indirect costs, contractor
2 costs, cooperative agreement costs, compliance monitoring,
3 including the collection and analysis of split samples, inspection
4 of RI/FS activities, Site visits, discussions regarding disputes
5 that may arise as a result of this Order, review and approval or
6 disapproval of reports, costs of performing the baseline risk
7 assessment, and costs of redoing any of Respondents' tasks. Any
8 necessary summaries, including, but not limited to EPA's certified
9 Agency Financial Management System summary data (SPUR Reports), or
10 such other summary as certified by EPA, shall serve as basis for
11 payment demands.

12 106. Respondents shall, within 45 days of receipt of each
13 accounting, remit a certified or cashier's check for the amount of
14 those costs. The interest on oversight costs shall begin to accrue
15 on the date payment is due under this Order. Interest shall accrue
16 at the rate specified through the date of the Respondent's payment.
17 The interest rate is the rate of interest on investments for the
18 Hazardous Substances Superfund in Section 107(a) of CERCLA.

19 107. Checks shall be made payable to the Hazardous Substances
20 Superfund and should include the name of the Site (Blackbird Mine),
21 the Site identification number (10-W8), and the title of this
22 Order. Checks should be forwarded to:

23 U.S. Environmental Protection Agency
24 Superfund Accounting
25 P.O. Box 360903M
26 Pittsburgh, PA 15251

27 108. Copies of the transmittal letter and check shall be sent
28 simultaneously to the EPA Project Coordinator.

1 109. Respondents agree to limit any disputes concerning costs
2 to accounting errors and the inclusion of costs outside the scope
3 of this Order. Respondents shall identify any contested costs and
4 the basis of its objection. All undisputed costs shall be remitted
5 by Respondents in accordance with the schedule set forth above.
6 Disputed costs shall be paid by Respondents into an escrow account
7 while the dispute is pending. Respondents bear the burden of
8 establishing an EPA accounting error or the inclusion of costs
9 outside the scope of this Order. Respondents shall ensure that the
10 prevailing party or parties in the dispute shall receive the amount
11 upon which they prevailed from the escrow funds plus interest
12 within 45 days after the dispute is resolved.

13 110. Respondents shall make payment to the Idaho Department of
14 Health and Welfare Division of Environmental Quality (DEQ) of
15 \$256,000 to provide for costs of state oversight from the effective
16 date of this Order until July 1, 1996. Said amount shall be used
17 to fund state oversight of the activities set forth in this Order
18 and any implementation of any response action occurring at the Site
19 before July 1, 1996. In the event performance of activities by
20 this Order continues after July 1, 1996, Respondents shall
21 negotiate with the State regarding payment of those costs
22 reasonably incurred. If an agreement cannot be reached between
23 Respondents and the State, the State reserves all right to seek
24 recovery of state oversight costs incurred after July 1, 1996.
25 Notwithstanding payments made pursuant to this paragraph, the State
26 reserves its right to negotiate at a later date the payment of its
27 costs of overseeing implementation of a response action other than

1 the response action governed by this Order which continues or
2 commences after July 1, 1996.

3 111. Respondents shall pay \$256,000 to DEQ for state oversight
4 costs pursuant to the preceding paragraph. Respondents shall pay
5 \$136,000 within 30 days of the effective date of this Order and
6 three quarterly advances of \$40,000 each on October 1, 1995,
7 January 1, 1996, and April 1, 1996. Payments shall be made by
8 checks payable to the Idaho Department of Health and Welfare,
9 Division of Environmental Quality. Payment shall be mailed to:

10 Fiscal Cashier
11 IDHW-DEQ
12 1410 N. Hilton
Boise, ID 83796-1290

13 Said amount shall be placed in a separate, earmarked account with
14 the Department of Health and Welfare. Respondents shall be
15 provided a quarterly accounting of funds disbursed from this
16 account. In the event that any funds remain in this account on
17 July 1 1996, they shall be used by the State to oversee or perform
18 response action at the Site.

19 XXV. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

20 112. EPA reserves the right to bring or maintain an action
21 against the Respondents under Section 107 of CERCLA for recovery of
22 all response costs, including oversight costs, incurred by the
23 United States at the Site that are not reimbursed by the
24 Respondents, any costs incurred in the event that EPA performs the
25 RI/FS or Early Action or any part thereof, and any future costs
26

1 incurred by the United States in connection with response
2 activities conducted under CERCLA at this Site.

3 113. EPA reserves the right to bring an action against
4 Respondents to enforce the past costs and response and oversight
5 cost reimbursement requirements of this Consent Order, to collect
6 stipulated penalties assessed pursuant to Section XXII of this
7 Order, and to seek penalties pursuant to Section 109 of CERCLA, 42
8 U.S.C. § 9609.

9 114. Except as expressly provided in this Order, each party
10 reserves all rights and defenses it may have. Except as provided
11 in Section XXII, nothing in this Order shall affect EPA's removal
12 authority or EPA's response or enforcement authorities including,
13 but not limited to, the right to seek injunctive relief, stipulated
14 penalties, statutory penalties, and/or punitive damages.

15 115. Following satisfaction of the requirements of this
16 Order, Respondents shall have resolved its liability to EPA for the
17 work performed by Respondents pursuant to this Order. Respondents
18 are not released from liability, if any, for any response actions
19 taken beyond the scope of this Order regarding removals, other
20 operable units, remedial design/remedial action, or activities
21 arising pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

22
23 XXVI. OTHER CLAIMS

24 116. By issuance of this Order, the United States and EPA
25 assume no liability for injuries or damages to persons or property
26 resulting from any acts or omissions of Respondents. The United
27 States or EPA shall not be deemed a party to any contract entered

1 into by the Respondents or their directors, officers, employees,
2 agents, successors, representatives, assigns, contractors, or
3 consultants in carrying out actions pursuant to this Order unless
4 the United States expressly agrees in writing to be a party to such
5 a contract.

6 117. Except as expressly provided in Section XXVII (Covenant
7 Not To Sue) and Section XXVIII (Contribution Protection), nothing
8 in this Order constitutes a satisfaction or release from any claim
9 or cause of action against the Respondents or any person not a
10 party to this Order, for any liability such person may have under
11 CERCLA, other statutes, or the common law, including, but not
12 limited to, any claims of the United States for costs, damages, and
13 interest under Sections 106(a) and 107(a) of CERCLA, 42 U.S.C. §§
14 9606(a) and 9607(a), and those claims made by the United States in
15 United States of America v. Blackbird Mining Company Limited
16 Partnership, e al., Case No. CV 93-235-E-HLR (D. Idaho).

17 118. This Order does not constitute a preauthorization of
18 funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).
19 The Respondents waive any claim to payment under Sections 106(b),
20 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611, and 9612,
21 against the United States or the Hazardous Substance Superfund
22 arising out of any action performed under this Order. Respondents
23 reserve all claims they may have against the United States in the
24 litigation before the United States District Court for the District
25 of Idaho State of Idaho, et al. v. M.A. Hanna Company, et al., Civ.No. 83-

1 4179 (D. Idaho), or United States of America v. Blackbird Mining
2 Company Limited Partnership, e al., Case No. CV 93-235-E-HLR (D.
3 Idaho).

4 119. No action or decision by EPA pursuant to this Order
5 shall give rise to any right to judicial review except as set forth
6 in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

7 120. Respondents shall bear their own costs and attorneys
8 fees.

9
10 XXVII. COVENANT NOT TO SUE

11 121. Upon issuance of the EPA approval of the certification
12 referred to in Section XXXIII, EPA covenants not to sue Respondents
13 for judicial imposition of damages or civil penalties for any
14 failure to perform obligations agreed to in this Order except for
15 continuing obligations required under this Order and as otherwise
16 reserved herein.

17 122. Upon payment of the costs incurred by EPA in overseeing
18 Respondent's implementation of the requirements of this Order, EPA
19 covenants not to sue or to take administrative action against
20 Respondents under section 107(a) of CERCLA for recovery of such
21 oversight costs expended in connection with this Order that are
22 reimbursed under this Order.

23 123. Subject to the agreements and reservations specified in
24 Section XXV and XXVI and as otherwise reserved herein, Respondents
25 covenant not to sue and agrees not to assert any claims or causes
26 of action against EPA arising out of response activities under this
27 Order.

1 XXIII. CONTRIBUTION PROTECTION

2 124. With regard to claims for contribution against
3 Respondents for matters addressed in this Order, the Parties hereto
4 agree that the Respondents are entitled to protection from
5 contribution actions or claims to the extent provided by Section
6 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and
7 9622(h)(4). Nothing in this Order precludes the United States or
8 the Respondents from asserting any claims, causes of action or
9 demands against any persons not parties to this Order for
10 indemnification, contribution, or cost recovery.
11

12 XXIX. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

13 125. Prior to commencement of any work under this Order,
14 Respondents shall secure, and shall maintain in force for the
15 duration of this Order Comprehensive General Liability ("CGL") and
16 automobile insurance, with limits of \$1 million dollars, combined
17 single limit, naming as insured the United States. The CGL
18 insurance shall include Contractual Liability Insurance in the
19 amount of \$1 million per occurrence, and Umbrella Liability
20 Insurance in the amount of \$2 million per occurrence.

21 126. For the duration of this Order, Respondents shall
22 satisfy, or shall ensure that their contractors or subcontractors
23 satisfy, all applicable laws and regulations regarding the
24 provision of employer's liability insurance and workmen's
25 compensation insurance for all persons performing work on behalf of
26 the Respondents, in furtherance of this Order.
27

1 127. If Respondents demonstrate by evidence satisfactory to
2 EPA that any contractor or subcontractor maintains insurance
3 equivalent to that described above, or insurance covering the same
4 risks but in a lesser amount, then with respect to that contractor
5 or subcontractor, Respondents need provide only that portion of the
6 insurance described above which is not maintained by the contractor
7 or subcontractor.

8 128. Prior to commencement of any work under this Order, and
9 annually thereafter on the anniversary of the effective date of
10 this Order, Respondents shall provide to EPA certificates of such
11 insurance.

12 129. At least 7 days prior to commencing any work under this
13 Order, Respondents shall certify to EPA that the required insurance
14 has been obtained by that contractor.

15 130. The Respondents agree to indemnify and hold EPA and the
16 State, their agencies, departments, agents, and employees harmless
17 from any and all claims or causes of action arising from or on
18 account of acts or omissions of Respondents, its officers, heirs,
19 directors, employees, agents, servants, receivers, successors, or
20 assignees, or any persons including, but not limited to, firms,
21 corporations, subsidiaries and contractors, in carrying out
22 activities under this Order. The United States Government, the
23 State, or any agency or authorized representative thereof shall not
24 be held as a party to any contract entered into by Respondents in
25 carrying out activities under this Order unless the United States
26 or the State expressly agrees in writing to be a party to such a
27 contract. This indemnification agreement does not apply to any

1 claims or causes of action Respondents may have against the United
2 States in litigation presently pending in the State of Idaho or the
3 United States District Court for the District of Idaho.

4
5 XXX. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

6 131. The effective date of this Order shall be the date it is
7 signed by EPA. However, Respondents shall begin working on Task I
8 of the RI/FS (paragraph 49.a.) and Task I of the Early Action
9 (paragraph 68.a.i.) upon Respondents signing of the Order.

10 132. If Respondents seek permission to deviate from any
11 approved Work Plan, schedule, RI/FS Statement of Work or Early
12 Action Statement of Work, Respondents' Project Coordinator shall
13 submit a written request to EPA for approval outlining the proposed
14 modification and its basis. If at any time during the RI/FS or
15 Early Action, unanticipated conditions or changed circumstances are
16 discovered which may result in a schedule delay, Respondents shall
17 request an extension in writing to the EPA Project Coordinator.
18 The Respondent shall specify the length of the extension sought,
19 the good cause(s) for the extension and any related timetable and
20 deadline or schedule that would be affected if the extension were
21 granted. The EPA Project Coordinator will determine whether a
22 schedule extension is warranted based on good cause.

23 133. Modifications to any plan, deliverables, schedule, RI/FS
24 Statement of Work or Early Action Statement of Work may be made, in
25 writing, by EPA's Project Coordinator or at her oral direction. If
26 EPA's Project Coordinator makes an oral modification, it will be
27 memorialized in writing within (10) days; provided, however, that

1 the effective date of the modification shall be the date of the EPA
2 Project Coordinator's oral direction. Any other requirements of
3 the Order may be modified, in writing, by mutual agreement of the
4 parties.

5 134. No informal advice, guidance, suggestion, or comment by
6 EPA regarding reports, plans, specifications, schedules, or any
7 other writing submitted by the Respondents shall relieve the
8 Respondents of their obligation to obtain such formal approval as
9 may be required by this Order, and to comply with all requirements
10 of this Order unless it is formally modified. Any deliverables,
11 plans, technical memoranda, reports (other than progress reports),
12 specifications, schedules and attachments required by this Order
13 are, upon approval by EPA, incorporated into this Order.

14
15 XXXI. ADDITIONAL REMOVAL ACTION

16 135. If EPA determines that additional removal actions not
17 included in an approved plan are necessary to protect public
18 health, welfare, or the environment, EPA will notify Respondents of
19 that determination. Unless otherwise stated by EPA, within thirty
20 days of receipt of notice from EPA that additional removal actions
21 are necessary to protect public health, welfare, or the
22 environment, Respondents shall amend this Order or negotiate an
23 agreement for additional removal actions in accordance with the
24 provisions and schedule contained therein. This section does not
25 alter or diminish the EPA Project Coordinator's authority to make
26 oral modifications to any plan or schedule pursuant to Section
27 XXIX.

1 XXXII. SEVERABILITY

2 136. If a court issues an order that invalidates any
3 provision of this Order or finds that Respondents have sufficient
4 cause not to comply with one or more provisions of this Order,
5 Respondents shall remain bound to comply with all provisions of
6 this Order not invalidated or determined to be subject to a
7 sufficient cause defense by the court's order.
8

9 XXXIII. TERMINATION AND SATISFACTION


10 137. This Order shall terminate when the Respondents
11 demonstrate in writing and certify to the satisfaction of EPA that
12 all RI/FS and Early Action activities required under this Order,
13 including any additional work, payment of oversight costs, and any
14 stipulated penalties demanded by EPA, have been performed and EPA
15 has approved the certification. EPA's approval in writing of the
16 certification shall terminate Respondents' obligations under this
17 Order, except that EPA's approval shall neither terminate
18 Respondents' obligation to comply with Sections XXIV, XXVII, and
19 XXIX of this Order, nor affect Respondents' rights under Section
20 XXVIII. If EPA determines that any RI/FS or Early Removal actions
21 have not been completed in accordance with this Order, EPA will
22 notify the Respondents, provide a list of the deficiencies, and
23 require that Respondents modify the work or design plan, if
24 appropriate, in order to correct such deficiencies. The
25 Respondents shall have a reasonable opportunity to correct such
26 deficiencies by implementing the modified and approved work or
27 design plan, and shall submit a modified notice of completion.

1 Failure by Respondents to implement the approved modified work or
2 design plan shall be a violation of this Order.

3 138. The certification shall be signed by a responsible
4 official representing each Respondent. Each representative shall
5 make the following attestation: "I certify that the information
6 contained in or accompanying this certification is true, accurate,
7 and complete." For purposes of this Order, a responsible official
8 is a corporate official who is in charge of a principal business
9 function. The undersigned representatives of Respondents certify
10 that they are fully authorized to enter into the terms and
11 conditions of this Order and to bind the parties they represent to
12 this document.

13
14
15 It is so ORDERED and Agreed this 18th day of November, 1994.

16
17 By:


18 Michael F. Gearheard, Manager
19 NPL Superfund Branch

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Date:

11-18-94

1 The signatories to this Order certify that they are authorized to
2 execute and legally bind the parties they represent to this Order.

3 FOR THE NORANDA MINING, INC. NORANDA EXPLORATION, INC., BLACKBIRD
4 MINING COMPANY LIMITED PARTNERSHIP:

5 Agreed this 16 day of November, 1994.
6

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8 By: *R. L. Mitho*

9 Title *Vice President*

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The signatories to this Order certify that they are authorized to execute and legally bind the parties they represent to this Order.

FOR ALUMET CORPORATION:

Agreed this 15 day of November, 1994.

By: *P. P. White*

Title Vice President

1 The signatories to this Order certify that they are authorized to
2 execute and legally bind the parties they represent to this Order.

3 FOR THE STATE OF IDAHO:

4 Agreed this 24th day of October, 1994.

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6
7 By: JOE NAGEL

8 JOE NAGEL

9 Title: Administrator
10 Idaho Department of Health & Welfare
11 Division of Environmental Quality
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BLACKBIRD MINE
STATEMENT OF WORK
FOCUSED REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES

INTRODUCTION

The Purpose of this focused Remedial Investigation Feasibility Study (RI/FS) is to investigate the nature and extent of contamination at a site, assess the potential risk to human health and the environment, and develop and evaluate potential remedial alternatives. The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies.

In order to streamline the RI/FS process and accelerate remedy selection a presumptive remedy approach will be taken at the site to the maximum extent practicable. The Blackbird Mine Participating Group (BMPG) will conduct this focused RI/FS (except for the baseline risk assessment component) and will produce a draft RI and FS report, consistent with the National Contingency Plan (NCP), that are in accordance with this statement of work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any other guidance that EPA uses in conducting an RI/FS (a list of the primary guidance is attached) as deemed appropriate for the Blackbird Mine, as well as any additional requirements in the administrative order. The RI/FS Guidance describes the report format and the required report content. The BMPG will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the administrative order.

At the completion of the focused RI/FS, EPA will be responsible for the selection of a site remedy and will document this selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in Section 121 of CERCLA. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final focused RI/FS report, as adopted by EPA, and EPA's baseline risk assessment will, with the administrative record, form the basis for the selection of the site's remedy and will

provide the information necessary to support the development of the ROD.

As specified in Section 104(a)(1) of CERCLA, as amended by SARA, EPA will provide oversight of the BMPG's activities throughout the RI/FS. The BMPG will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

TASK 1 - SCOPING (RI/FS Guidance, Chapter 2)

Scoping is the initial planning process of the focused RI/FS and is initiated by EPA prior to issuing special notice. During this time, the site-specific objectives of the focused RI/FS, including the preliminary remediation goals (PRGs), are determined by EPA in consultation with the State, the Trustees, and the BMPG. Scoping is therefore initiated prior to negotiations between the PRPs and EPA, and is continued, repeated as necessary, and refined throughout the focused RI/FS process. In addition to developing the site-specific objectives of the focused RI/FS, EPA will determine a general management approach for the site. Consistent with the general management approach, the specific project scope will be planned by the EPA and BMPG in consultation with the State and Trustees during workplan scoping. The BMPG will document the specific project scope in a work plan. Because the work required to perform a focused RI/FS is not fully known at the onset, and is phased in accordance with a site's complexity and the amount of available information, it may be necessary to modify the work plan during the focused RI/FS to satisfy the objectives of the study.

The site objectives for the Blackbird Mine site, located in the State of Idaho, have been determined preliminarily, based on available information, to be the following:

- To determine the nature and extent of contamination in but not limited to tailing deposits, waste rock deposits, adit discharges and seeps, perennial surface waters/sediments, ephemeral stream channels, and groundwaters.
- To determine the quantity and quality of metals (mass loading) released from source locations and areas, on an average and seasonal basis.
- To determine current water quality conditions in Panther Creek upstream of Blackbird Mine and in nearby tributaries to Panther Creek unaffected by Blackbird Mine.
- To determine the potential threat to human health and the environment in a human health and ecological risk assessment prepared by EPA.

- To evaluate potential remedial alternatives and no action alternatives that will reduce and control migration of contaminants from source areas and restore water quality, habitat, and aquatic biota in Panther Creek to a level capable of supporting all life stages of anadromous and resident salmonids.

- To evaluate potential remedial alternatives and no action alternatives that will reduce and control migration of contaminants from source areas and restore water quality, habitat, and aquatic biota in Blackbird Creek, Big Deer Creek, West Fork Blackbird Creek, Meadow Creek, Bucktail Creek, and other impacted tributaries of Panther Creek to a level capable of supporting all life stages of resident salmonids.

The strategy for the general management of the Blackbird Mine site will include the following:

The focused RI/FS will be performed by the BMPG with EPA oversight, under the requirements of the Administrative Order on Consent (AOC), and in consultation with the State of Idaho (State) and Federal Trustees (Trustees). A presumptive remedy approach will be taken to streamline the RI/FS process to the maximum extent practicable. During work plan scoping, EPA in conjunction with the State, the trustees, and the BMPG will determine if there are any early actions that should be taken at the site.

When scoping the specific aspects of a project, the BMPG will meet with EPA to discuss all project planning decisions and special concerns associated with the site. The following activities shall be performed by the BMPG as a function of the project planning process.

As described in this Statement of Work, a series of project deliverables will be prepared by the BMPG for review and approval by EPA. These deliverables are as follows:

- Focused RI/FS Work Plan (Task 1c)
- Focused RI/FS Sampling and Analysis Plan (SAP) (Task 1c)
- Site Health and Safety Plan (HSP) (Task 1c)
- Preliminary Site Characterization Summary (Task 3)
- Remedial Investigation Report (Task 3)
- Treatability Study Work Plan, SAP, HSP, Evaluation Report (Task 3)
- Remedial Action Objective Technical Memorandum (Task 5)
- Preliminary Screening of Technologies and Alternatives, Assembled Alternatives Screening Results and Final Screening Technical Memorandum (Task 5)

- Detailed Analysis of Alternatives Technical Memorandum (Task 6)
- Conceptual Design (Task 6)
- Feasibility Study Report (Task 6)

The general process for development of each of these deliverables is as follows. The BMPG will prepare a detailed annotated outline for submittal to EPA, State and Trustees for review and comment. On all document submittals by the BMPG, the EPA will submit comments that will incorporate comments from the State and Trustees. Upon receipt of comments from EPA, the BMPG will prepare a draft deliverable, which satisfactorily addresses EPA's comments. The draft deliverable will then be submitted for EPA, State and Trustee review. Upon receipt of comments from EPA, the BMPG will revise the draft for submittal to EPA as a final deliverable. If EPA's comments are not addressed satisfactorily in the final deliverable, the final deliverable will become a draft final and EPA will submit additional comments. Upon receipt of EPA's comments, the BMPG will satisfactorily address EPA's comments and then submit a final document for EPA, State and Trustee review. In addition to the above-listed deliverables, the BMPG will submit monthly progress reports to EPA and any other written correspondence necessary to ensure an efficient flow of information and expedited completion of the Blackbird Mine focused RI/FS.

The BMPG will develop a schedule for the completion of the focused RIFS at the outset of project activities in accordance with the schedule outlined in the AOC. The project schedule will be presented to EPA for review and discussion. The project schedule may periodically be updated as the focused RI/FS activities proceed.

a. Site Background (2.2)

The BMPG will gather and analyze the existing site background information and will conduct a site visit to assist in planning the scope of the RI/FS.

Collect and analyze existing data and document the need for additional data (2.2.2; 2.2.6; 2.2.7)

Before planning RI/FS activities, all existing site data will be thoroughly compiled and reviewed by the BMPG. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the site, and past disposal practices. This will also include results from any previous sampling events that may have been conducted. The BMPG has prepared a bibliography listing all known studies, and the bibliography has been reviewed and commented to by the parties. This information will be utilized in determining additional data

needed to characterize the site, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA in consultation with the State and Trustees.

Only existing data that meets DQOs and is of known quality will be considered for use in site characterization of the RI report and for the baseline risk assessment prepared by EPA. It is anticipated that the quality of the data from the majority of the historical sampling events and reports will not be of known quality and therefore, can only be used in work plan scoping to identify data needs and data gaps. Data of known quality (existing or collected as part of the focused RI) can be used to confirm trends shown in historical sampling events and reports based on data of unknown quality. It is anticipated that the State and Trustee data from sampling events since 1992 will be of known quality, and therefore, can be used for site characterization. The useability of existing data will be determined by EPA.

Conduct Site Visit

The BMPG will conduct a site visit during the project scoping phase to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors within the study area. During the site visit the BMPG should observe the site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological, and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

b. Project Planning (2.2)

Once the BMPG has collected and analyzed existing data and conducted a site visit, the specific project scope will be planned. Project planning activities include those tasks described below, as well as identifying data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols. The BMPG will meet with EPA regarding the following activities and before the drafting of the scoping deliverables below. These tasks are described in Section c of this task since they result in the development of specific required deliverables.

Refine and document preliminary remedial action objectives and alternatives (2.2.3)

Once existing site information has been analyzed and an understanding of the potential site risks has been determined by EPA, the BMPG will review and, if necessary, refine the remedial action objectives that have been identified by EPA for each actually or potentially contaminated medium. The revised remedial action objectives will be documented in a technical memorandum and subject to EPA approval. The BMPG will then identify a preliminary range of broadly defined potential remedial action alternatives and associated technologies. The range of potential alternatives should encompass, where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that involve containment with little or no treatment; and a no-action alternative. The BMPG will then identify if presumptive remedies apply to the site that will meet the overall objectives. Early identification of presumptive remedies are expected to help focus identification of data needs, data gaps and remaining data collection efforts and to streamline the FS. The BMPGs will document the recommended presumptive remedies to the EPA in a technical memorandum. The EPA in consultation with the State and Trustees will determine whether the presumed remedies apply to the site. Based on existing information it is recognized that expanded diversion of uncontaminated water with collection, storage and treatment of contaminated water may be part of the presumed remedies for the Blackbird Mine site.

Document the need for treatability studies (2.2.4)

If remedial actions involving treatment have been identified by the BMPG or EPA, treatability studies will be required, except where the BMPG can demonstrate to EPA's satisfaction that they are not needed. Where treatability studies are needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with site characterization activities (see Tasks 3 and 5).

Begin preliminary identification of potential ARARs (2.2.5)

The BMPG will conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific, and action specific) to assist in the refinement of remedial action objectives, and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue

as site conditions, contaminants, and remedial action alternatives are better defined.

c. Scoping Deliverables (2.3)

At the conclusion of the project planning phase, if EPA determines that there are data gaps, the BMPG will submit a work plan, a sampling and analysis plan (SAP), and a site health and safety plan (HSP). These plans will cover the activities of collecting data necessary to fill any gaps. The focused RI/FS work plan and sampling and analysis plan must be reviewed and approved by EPA prior to the initiation of field activities.

Focused RI/FS Work Plan (2.3.1)

A work plan documenting the decisions and evaluations completed during the scoping process will be submitted to EPA for review and approval. The work plan should be developed in conjunction with the sampling and analysis plan and the site health and safety plan, although each plan may be delivered under separate cover. The work plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. In addition, the work plan must include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the site and the objectives of the focused RI/FS. Furthermore, the plan will include a site background summary setting forth the site description including the geographic location of the site, and to the extent possible, a description of the site's physiography, hydrology, geology, demographics, ecological, cultural, and natural resource features; a synopsis of the site history and a description of previous responses that have been conducted at the site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the site. The plan will recognize EPA's preparation of the baseline risk assessment. In addition, the plan will include a description of the site management strategy developed by EPA during scoping; a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plan will reflect coordination with treatability study requirements (see Tasks 1 and 4). It will include a process for and manner of identifying federal and state ARARs (chemical-specific, location-specific, and action-specific).

Finally, the major part of the work plan is a detailed description of the tasks to be performed, information needed

for each task and for EPA's baseline risk assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this statement of work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the focused RI/FS. The BMPG will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required work plan. Because of the iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. The BMPG will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such requirements are identified. In any event, the BMPG is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this focused RI/FS.

Sampling and Analysis Plan (2.3.2)

If EPA determines during project planning and work plan scoping that there are gaps in the existing data, the BMPG will prepare a sampling and analysis plan (SAP) to ensure that sample collection and analytical activities to fill the identified data gaps are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The SAP provides a mechanism for planning field activities and consists of a field sampling plan (FSP) and a quality assurance project plan (QAPP).

The FSP will define in detail the sampling and data collection methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs will, at a minimum, reflect use of analytic methods to identify contamination and remediate contamination consistent with the levels for remedial action objectives identified in the proposed National Oil and Hazardous Substances Pollution Contingency Plan (NCP), pages 51425-26 and 51433 (December 21, 1988). In addition, the QAPP will address sampling

procedures, sample custody, analytical procedures, and data reduction, validation, reporting, and personnel qualifications. The BMPG will demonstrate, in advance and to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the site by EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this site for the purposes proposed and QA/QC procedures approved by EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that the BMPG submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications. The BMPG will provide assurances that EPA has access to laboratory personnel, equipment, and records for sample, collection, transportation, and analysis.

Site Health and Safety Plan (2.3.3)

A health and safety plan (HSP) will be prepared in conformance with the BMPG's health and safety program, and in compliance with OSHA regulations and protocols. The health and safety plan will include the eleven (11) elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control. The BMPG has a health and safety plan previously reviewed by the EPA for the August 1993 removal AOC which will be modified as required. It should be noted that EPA does not "approve" the respondent's health and safety plan, but rather EPA reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment. If the State of Idaho and Trustees HSP meets the requirements specified above the BMPGs may use the existing HSP and update the document when deemed necessary by the BMPG or EPA.

TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. The EPA will coordinate these activities with the BMPG. The critical community relations planning steps performed by EPA include conducting community interviews and developing a community relations plan. Although implementation of the community

relations plan is the responsibility of EPA, the BMPG may assist by providing information regarding the site's history, participating in public meetings, or by preparing fact sheets for distribution to the general public. Two or more baseline risk assessment memoranda will be prepared by EPA which will summarize the toxicity assessment and exposure assessment components of the baseline risk assessment. EPA will make these memoranda available to all interested parties for comment and place them in the Administrative Record. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) In addition, the BMPG may establish a community information repository, at or near the site, to house one copy of the administrative record. The extent of PRP involvement in community relations activities is left to the discretion of EPA. The BMPGs' community relations responsibilities, if any, are specified in the community relations plan. All PRP-conducted community relations activities will be subject to oversight by EPA.

TASK 3 - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

As part of the focused RI, the BMPG will perform the activities described in this task, including the preparation of a site characterization summary and a RI report. The overall objective of site characterization is to describe areas of a site that may pose a threat to human health or the environment. This is accomplished by first determining a site's physiography, geology, and hydrology. surface and subsurface pathways of migration will be defined. The BMPG will identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. The BMPG will also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the site. Using this information, contaminant fate and transport is then determined and projected.

The BMPG will conduct contaminant fate and transport analysis to the extent necessary to determine effectiveness of various types of containment of wastes and releases from the mine toward the objective of improving and restoring downstream water quality. This analysis will also determine the type and extent of remedial alternatives that may be required downstream of the waste containment.

The work plan, SAP, and health and safety plan are implemented to fill data gaps identified during the planning phase. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study.

The BMPG will notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field layout of the sampling grid, excavation, installation of wells, initiating sampling, installation, and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. The BMPG will demonstrate that the laboratory and type of laboratory analyses that will be utilized during site characterization meets the specific QA/QC requirements and the DQOs of the site investigation as specified in the SAP. In view of the unknown site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for the BMPG to supplement the work specified in the initial work plan. In addition to the deliverables below, the BMPG will provide a monthly progress report and participate in meetings at major points in the RI/FS.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the site. These activities will be performed by the BMPG in accordance with the work plan and SAP. At a minimum, this shall address the following:

Implement and document field support activities (3.2.1)

The BMPG will initiate field support activities following approval of the work plan and SAP. Field support activities may include obtaining access to the site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The BMPG will notify EPA at least two weeks prior to initiating field support activities so that EPA may adequately schedule oversight tasks. The BMPG will also notify EPA, in writing, upon completion of field support activities.

Investigate and define site physical and biological characteristics (3.2.2)

The BMPG will collect data necessary to fill any information gaps on the physical and biological characteristics of the site and its surrounding areas, including the physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts, and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the site's physical characteristics the BMPG will also obtain sufficient engineering data (such as pumping

characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

Define sources of contamination (3.2.3)

The BMPG will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The BMPG shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

The BMPG believes, due to its experience at the Blackbird Mine, that the contamination at the mine may be contained and stabilized with a global strategy, and microscopic identification of sources and contaminants may not be required.

Describe the nature and extent of contamination (3.2.4)

The BMPG will gather information to describe the nature and extent of contamination as a final step during the field investigation. The information will be comprised of existing data that is of known quality that meets DQO's and new data collected during the investigation. To describe the nature and extent of contamination, the BMPG will utilize the information and site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The BMPG will then implement an iterative monitoring program and any study program identified in the work plan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the study area can be determined. The existing data, of known quality per the DQO's, will be used for these determinations. In addition, the BMPG will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination

established in the QA/QC plan and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the site. BMPGs will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analyses (3.4)

Evaluate site characteristics (3.4.1)

The BMPG will analyze and evaluate the new and existing data to describe: (1) site physical and biological characteristics; (2) contaminant source characteristics; (3) nature and extent of contamination; and (4) contaminant fate and transport. Results of the site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented in a format (i.e., computer disc or equivalent) to facilitate EPA's preparation of the baseline risk assessment. The BMPG shall agree to discuss and then collect any data gaps identified by EPA that is needed to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment - OSWER Directive # 9285.7-05 - October 1990.) Also, this evaluation shall provide any information relevant to site characteristics necessary for evaluation of the need for remedial action in the baseline risk assessment and for the development and evaluation of remedial alternatives. Analyses of data collected for site characterization will meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RI).

c. Data Management Procedures (3.5)

The BMPG will consistently document the quality and validity of field and laboratory data compiled during the RI.

Document field activities (3.5.1)

Information gathered during site characterization will be consistently documented and adequately recorded by the BMPG in well-maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work

plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain sample management and tracking (3.5.2; 3.5.3)

The BMPG will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in any site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the BMPG will establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.7)

The BMPG will prepare the preliminary site characterization summary and [once the baseline risk assessment is completed by EPA,] the remedial investigation report.

Preliminary Site Characterization Summary (3.7.2)

After completing field sampling and analysis, the BMPG will prepare a concise site characterization summary. This summary will review the investigative activities that have taken place, and describe and display site data documenting the location and characteristics of surface and subsurface features and contamination at the site, including the affected medium, location, types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source, and the extent of contaminant migration through each of the affected media will be documented. The site characterization summary will provide EPA with a preliminary reference for developing the risk assessment, and evaluating the development and screening of remedial alternatives, and the refinement and identification of ARARs. Also, site characterization will identify any remaining data gaps, and the site characterization will be included in the RI report.

Focused Remedial Investigation (RI) Report (3.7.3)

The BMPG will prepare and submit a draft focused RI report to EPA for review and approval. This report shall summarize results of field activities to characterize the site, sources of contamination, nature and extent of contamination, and the fate and transport of contaminants. The BMPG will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, the BMPG will prepare a final focused RI report which satisfactorily addresses EPA's comments.

TASK 4 - TREATABILITY STUDIES (RI/FS Manual, Chapter 5)

Treatability testing will be performed by the BMPG to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by the BMPG.

a. Determination of Candidate Technologies and of the Need for Testing (5.2; 5.4)

The BMPG will identify in a technical memorandum, subject to EPA review and approval, candidate technologies for a treatability studies program during project planning (Task 1). The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 6.a.) The specific data requirements for the testing program will be determined and refined during site characterization and the development and screening of remedial alternatives (Tasks 2 and 6, respectively).

Conduct literature survey and determine the need for treatability testing (5.2)

The BMPG will conduct a literature survey to gather information of performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for this site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless the BMPG can demonstrate to EPA's satisfaction that they are not needed, the BMPG will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

Evaluation treatability studies (5.4)

Once a decision has been made to perform treatability studies, the BMPG and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, the BMPG will either submit a separate treatability testing work plan or an amendment to the original site work plan for EPA review and approval.

b. Treatability Testing and Deliverables (5.5; 5.6; 5.8)

The deliverables that are required, in addition to the memorandum identifying candidate technologies, where treatability testing is conducted, include a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, where appropriate.

Treatability testing work plan (5.5)

The BMPG will prepare a treatability testing work plan or amendment to the original site work plan for EPA review and approval describing the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site, permitting requirements will be addressed.

Treatability study SAP (5.5)

If the original QAPP or FSP is not adequate for defining the activities to be performed during the treatability tests, a separate treatability study SAP or amendment to the original site SAP will be prepared by the BMPG for EPA review and approval. Task 1, Item c. of this statement of work provides additional information on the requirements of the SAP.

Treatability study health and safety plan (5.5)

If the original health and safety plan is not adequate for defining the activities to be performed during the treatment tests, a separate or amended health and safety plan will be developed by the BMPG. Task 1, Item c, of this statement of work provides additional information on the requirements of the health and safety plan. EPA does not "approve" the treatability study health and safety plan.

Treatability study evaluation report (5.6)

Following completion of treatability testing, the BMPG will analyze and interpret the testing results in a technical report to EPA. Depending on the sequence of activities, this report may be a part of the focused RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost, and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 5 - DEVELOPMENT AND SCREENING OF Remedial Alternatives (RI/FS Manual, Chapter 4)

The development and screening of remedial alternatives is performed to develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include, as appropriate, options which result in permanent solutions; options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed by the BMPG as a function of the development and screening of remedial alternatives.

a. Development and Screening of Remedial Alternatives (4.2)

The BMPG will begin to develop and evaluate a range of appropriate waste management options that, at a minimum, ensure protection of human health and the environment, concurrent with the focused RI site characterization task. The presumptive remedy approach will be taken to streamline the Feasibility Study to the maximum extent practicable.

Refine and document remedial action objectives (4.2.1)

Based on EPA's baseline risk assessment, the BMPG will review and, if necessary, modify the site-specific remedial action objectives, specifically the PRGs, that were established by EPA prior to or during negotiations between EPA and the BMPG. The revised PRGs will be documented in a technical memorandum that will be reviewed and approved by EPA. These modified PRGs will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

Develop general response actions (4.2.2)

The BMPG will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

Identify areas or volumes of media (4.2.3)

The BMPG will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the site will also be taken into account.

Identify, screen, and document remedial technologies (4.2.4; 4.2.5)

The BMPG will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options will be summarized for inclusion in a technical memorandum. The reasons for eliminating alternatives must be specified.

Assemble and document alternatives (4.2.6)

The BMPG will assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of

treatment and containment combinations that will address either the site or the operable unit as a whole. A summary of the assembled alternatives and their related action-specific ARARs will be prepared by the BMPG for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Refine alternatives

The BMPG will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in EPA's baseline risk assessment information presented in EPA's baseline risk assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

Conduct and document screening evaluation of each alternative (4.3)

The BMPG may perform a final screening process based on short- and long-term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. The BMPG will prepare a technical memorandum summarizing the results and reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening.

b. Alternatives Development and Screening Deliverables (4.5)

The BMPG will prepare a technical memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. These will be modified by the BMPG if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. It is anticipated that the presumptive remedy approach will result in the elimination of the

majority of the technologies and alternatives during the screening process unless site specific information dictates otherwise. This deliverable will document the methods, rationale, and results of the alternatives screening process.

TASK 6 - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES (RI/FS Guidance, Chapter 6)

The detailed analysis will be conducted by the BMPG to provide EPA with the information needed to allow for the selection of a site remedy. This analysis is the final task to be performed by the BMPG during the focused FS.

a. Detailed Analysis of Alternatives (6.2)

The BMPG will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

Apply nine criteria and document analysis (6.2.1 - 6.2.4)

The BMPG will apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) costs; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: Criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative, the BMPG should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion of the individual criterion assessment. If the BMPG does not have direct input on Criteria 8 state (or support agency) acceptance and (9) community acceptance, these will be addressed by EPA.

Compare alternatives against each other and document the comparison of alternatives (6.2.5; 6.2.6)

The BMPG will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. The BMPG will prepare a technical memorandum summarizing the results of the comparative analysis.

Conceptual Design(s)

If determined appropriate by EPA, the BMPG will prepare conceptual design(s) describing implementation of the presumptive remedy(ies). The conceptual designs will be prepared concurrently with the detailed analysis to better develop an overall understanding of the presumptive remedy and therefore allow for a more effective detailed analysis. Alternatively, conceptual design could occur after final remedy selection (the Record of Decision) by EPA. The conceptual designs may include certain fundamental design criteria such as preliminary design flow rates for any diversion structures, preliminary influent rates for treatment facilities, etc., and will include conceptual drawings of engineered works, as appropriate.

b. Detailed Analysis Deliverables (6.5)

In addition to the technical memorandum summarizing the results of the comparative analysis, the BMPG will submit a draft focused FS report to EPA for review and approval. Once EPA's comments have been addressed by the BMPG to EPA's satisfaction, the final focused FS report may be bound with the final RI report.

Focused Feasibility Study Report (6.5)

The BMPG will prepare a draft focused FS report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. The BMPG will refer to the RI/FS Guidance for an outline of the report format and the required report content. The BMPG will prepare a final focused FS report which satisfactorily addresses EPA's comments.

BLACKBIRD MINE -- RI/FS SCHEDULE (10/8/94)

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ID	Task Name	Dur.	Start	Finish	Pred.	1995												1996											
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	BMPG Draft WP and SAP Preparation	80d	10/17/94	1/14/95																									
2	Agency Comments - WP and SAP	30d	1/16/95	2/13/95	1																								
3	BMPG Final WP & SAP	30d	2/14/95	3/16/95	2																								
4	Field Investigation	122d	4/1/95	7/31/95	3																								
5	BMPG Modeling Site Char. Memo	30d	3/16/95	4/14/95	3																								
6	Agency Comments	16d	4/16/95	4/29/95	6																								
7	BMPG Final Modeling Site Char. Memo	30d	5/7/95	6/6/95	8FS+7d																								
8	BMPG Site Char. Report	30d	6/1/95	6/30/95	4																								
9	BMPG Draft RI	60d	8/1/95	9/20/95	8SS																								
10	Agency Comments - RI	25d	9/30/95	10/24/95	9																								
11	BMPG Final RI	30d	10/25/95	11/23/95	10																								
12	EPA Draft Risk Assessment	48d	8/31/95	10/17/95	8																								
13	Agency Comments - RA	30d	10/18/95	11/16/95	12																								
14	EPA Final Risk Assessment	14d	11/17/95	11/30/95	13																								
15	BMPG RAO Memo	10d	12/1/95	12/10/95	14																								
16	BMPG Prelim. Screening of Alt's. Memo	28d	12/1/95	12/28/95	15SS																								
17	Agency Comments - Prelim. Screening	8d	12/28/95	1/3/96	16																								
18	BMPG Detailed Analysis of Alt's. Memo	21d	1/7/96	1/27/96	17																								
19	Agency Comments - Detailed Analysis	10d	1/28/96	2/8/96	18																								
20	BMPG Revision of Detailed Analysis	10d	2/7/96	2/18/96	19																								
21	BMPG Detailed Analysis/Meeting	1d	2/24/96	2/24/96	20FS+7d																								
22	BMPG Draft FS	16d	2/25/96	3/10/96	21																								
23	Agency Comments- FS	14d	3/11/96	3/24/96	22																								
24	BMPG Final FS	14d	3/26/96	4/7/96	23																								

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BMPG Activities

Agency Activities

Meetings



**BLACKBIRD MINE
STATEMENT OF WORK
EARLY ACTION**

1.0 INTRODUCTION

An evaluation and design of an Early Action shall be performed at the Blackbird Mine Site to (1) divert clean surface waters around waste rock and tailings (there are tailings in Meadow Creek drainage only), (2) collect, store and transport contaminated surface waters and groundwater from waste rock, tailings, adit discharges and seeps located in the Bucktail and Meadow/Blackbird Creek drainages, and (3) operate and maintain a waste water treatment plant for the treatment of the contaminated waters, and (4) remove contaminated sediments/tailings from depositional areas in Blackbird Creek. The evaluation and design of the Early Action shall be completed in accordance with the schedule in the Administrative Order on Consent (Order). The design of the Early Action will be phased to ensure that feasible alternatives are not precluded and that response actions selected for each drainage are considered.

The objectives of the Early Action are:

- To abate an imminent and substantial endangerment to the public health, welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Blackbird Mine Site;
- To support restoration of water quality and aquatic biota in Panther Creek below the confluence of Blackbird Creek to levels capable of supporting all life stages of anadromous and resident salmonids, and support restoration of water quality and aquatic biota in Big Deer Creek below the confluence of the South Fork of Big Deer Creek to levels capable of supporting all life stages of resident salmonids;
- To accomplish the aforementioned in a manner consistent with the NCP and with applicable EPA guidance documents and policies;
- To undertake the actions contemplated in a manner that will contribute to the efficient performance of any long term remedial action with respect to the releases and threatened releases.

The evaluation and design of the Early Action does not preclude evaluation in the focused RI/FS of potential threats of hazardous substances to the human health and the environment from other potential source areas and affected media, including but not limited to: the West Fork Tailings Dam; contaminated sediments and contaminated depositional areas in Blackbird, Bucktail, South Fork of Big Deer, Big Deer, Little Deer and

Panther Creeks; copper precipitates in Bucktail and South Fork of Big Deer Creeks and contaminated groundwater. The evaluation and design of the Early Action shall not be considered the final remedial action and does not predispose remedial alternatives evaluation in the focused RI/FS or the final Record of Decision.

The Blackbird Mine Participating Group (BMPG) will conduct the evaluation and design of the Early Action. As specified in Section 104 (a) (1) of CERCLA, as amended by SARA, EPA in consultation with the State and Natural Resource Trustees (Trustees), will provide oversight of the BMPG's activities throughout the field investigation, evaluation and design of the Early Action.

2.0 GENERAL DESCRIPTION OF WORK TO BE PERFORMED

A. Identification of Data Needs and Field Investigation

A scoping meeting with the EPA, the State and Trustees shall be held to help identify data needs and gaps for the design and implementation of the Early Action. The BMPG shall submit a draft work plan, including sampling and analysis plan, in accordance with Section XIII of the Order. In the Fall of 1994, the BMPG shall perform field investigative work to collect data necessary to perform the Phase I design. Field investigative work to collect data necessary for the Phase II design shall be initiated as soon as the site is accessible in the spring/early summer. Based on winter snowpack, EPA in consultation with the BMPG, State and Trustees will determine the date investigative work shall be initiated and completed.

B. Early Action

As outlined in Paragraph 1.0, the Early Action shall consist: of the diversion, collection, storage and treatment of waters at the Blackbird Mine; relocation of acid or metals generating waste rock in areas where it is more cost-effective than sediment handling and collection, diversion and treatment of water; and, removal of contaminated sediments/tailings in depositional areas in Blackbird Creek. The activities outlined below present concepts for the separation of clean water from contaminated water in upper Bucktail, Meadow and Blackbird Creeks, and for the storage and transport of the contaminated water for treatment at the existing treatment plant. The BMPG may present alternatives to the concepts listed below in analyzing the various approaches to diversion, collection, storage and treatment of waters at Blackbird Mine. The alternative concepts shall be presented in the analysis of alternatives (AOA) report in sufficient detail to allow for consideration, review and selection by EPA, in consultation with the State and Trustees. Preliminary data needs to establish design criteria for early actions are also outlined below.

a. Diversion of Clean Water

Evaluate diversion of clean water in the AOA report. The evaluation shall include, but not be limited to, a present worth analysis of the cost to construct and maintain clean water diversion and transport facilities against the cost to treat the clean water if not separated from the contaminated water. If justified in the AOA and selected by EPA, in consultation with the State and Trustees, clean surface runoff from upstream of the contaminated areas shall be diverted around the contaminated areas and transported downstream for discharge. Diversion of the clean water may result in smaller sized facilities to divert, store, and transport the contaminated water, and less water requiring treatment. Principle elements to be evaluated shall include:

- Clean water ditches constructed uphill from the acid or metals generating waste rock piles in both Bucktail and Meadow creeks and uphill from the Blacktail Pit, and uphill from the contaminated water reservoirs to divert surface runoff around the piles, the pit, and the contaminated water reservoirs.
- A system of channels and/or pipelines to collect the runoff from the clean water ditches and convey the clean water around the contaminated areas for discharge. Freeze/thaw conditions during the winter months should be considered in the analysis of conveyance options. The discharge in the Bucktail drainage would be below the point for diversion/storage of contaminated water. The discharge in the Blackbird drainage would be below the treatment plant.
- Diversion ditches and/or pipelines to intercept clean water stretches along Meadow Creek and its tributaries and transport clean water around waste rock or through waste rock in a pipeline, as deemed appropriate.
- An evaluation of the existing culvert under the 7100 waste rock pile and mine/mill site to determine its adequacy and integrity for carrying clean water, including Blackbird Creek, without further contamination.

b. Collection/Storage/Transport of Bucktail Creek Waters

The contaminated flows of Bucktail Creek shall be collected, and the water transported to treatment. The major elements to be evaluated shall include:

- A dam or dams across Bucktail Creek. The dam(s) can be either earthfill or concrete, depending upon alternatives analysis in the AOA report. The dam(s) shall be constructed with an impervious core or cutoff

wall extending to the underlying bedrock to intercept groundwater flow through the alluvium.

- Storage of the flows from high runoff events in Bucktail Creek. Flows up to the design runoff event shall be stored for treatment. Storage can either be behind the dam(s) or within the mine workings, depending upon alternatives analysis in the AOA report. The design runoff event shall be evaluated in the AOA.

The evaluation shall take into consideration:

- Runoff during spring snowmelt, occurring over a 4 month period. The evaluation shall include, but not be limited to, an analysis of runoff from the 100-year snowpack. Methodology for synthesizing runoff from snowpack(s) shall be provided.
- Runoff during a thunderstorm event. The evaluation shall include, but not be limited to, an analysis of the 500-year, 24-hour event.
- Sediment storage required to adequately store sediment and maintain acceptable water storage volumes. The analysis shall include, but not be limited to, anticipated sediments resulting from the runoff events specified above.

The evaluation shall be submitted to EPA in a technical memorandum for review and comment. The EPA, in consultation with the State and Trustees, shall choose the design runoff event.

- Collected water will be transported to the existing treatment plant or to a new treatment plant. Transport alternatives to be evaluated shall include: (1) a new gravity tunnel from the dam to the mine workings, (2) a ditch/pipeline system from the diversion dams to the 7117 adit, then gravity flow through the mine workings and discharge from the 6850 adit for conveyance to the treatment plant, (3) a pump/pipeline system from the dam(s) to the divide between the Bucktail and Meadow Creek drainages, then gravity flow in Meadow Creek to the treatment plant, and (4) a pump/pipeline system from the dam(s) (at an elevation lower than the 7117 adit) to the 7117 adit, then gravity flow through the mine workings and discharge from the 6850 adit for conveyance to the treatment plant. The selection of the transport system will depend on the location of the dam(s) and the alternatives analysis in the AOA report.
- An evaluation of a new treatment plant to be constructed in the Big Deer Creek drainage. The analysis shall include a present worth analysis of the

cost to construct, operate, and maintain facilities to transport to and treat contaminated waters at a treatment plant in the Big Deer Creek drainage as compared to the cost to transport contaminated waters to the Meadow Creek drainage and treat those waters at the existing treatment plant, considering potential improvements/expansion at the existing treatment plant.

- Depending upon the location of the dam(s), methods to intercept contaminated water from the lower wasterock piles and transport the contaminated water to Bucktail Creek above the dam(s). Freeze/thaw conditions in the winter should be considered in the evaluation of interception and conveyance methods.
- Depending upon the location of the dam(s), methods to intercept or collect all significant contaminated springs or seeps located below the dam(s), and transport the contaminated water to treatment.
- Where appropriate, relocation of acid generating waste rock present below the diversion dam(s) in Bucktail Creek to appropriate disposal areas.
- Sediment control facilities constructed upstream from the dam(s) to reduce siltation and loss of storage capacity.
- Removal/relocation of all acid and metals generating waste rock in the Bucktail Creek drainage. The evaluation shall include methods of removal/relocation, and feasible location and methods of disposal. The cost analysis shall include, but not necessarily be limited to, an evaluation of the present worth cost of removal/relocation of the waste rock against the present worth cost of sediment handling and transportation/treatment of the contaminated water due to waste rock.
- A stability analysis of the waste rock piles to determine the potential for erosion, slumping, mass wasting or slope failure due to the design runoff event or a maximum credible earthquake event. The analysis shall include an evaluation of measures to increase in-place stability of the waste rock piles.
- Depending on the location of the dam(s), removal of the waste rock and contaminated sediments along Bucktail Creek that were deposited during storm runoff and high flow events. The evaluation shall include removal of the deposited waste rock and contaminated sediments downstream from the lowest dam, considerations for handling any waste rock and contaminated sediments remaining upstream from the lowest dam, and location

and disposal methods for the removed waste rock and contaminated sediments.

The data needs include, but are not limited to:

- A preliminary mass loading analysis using existing data for metals in the Bucktail Creek to determine the optimum location for the dam(s), considering contaminant sources, including the bedrock groundwater discharge points. The ongoing data collection and existing data, including the flow (and water quality) data from the flumes recently installed along Bucktail Creek, should be sufficient for this preliminary mass loading.
- A engineering investigation to determine the optimum site for the dam(s) and to determine design criteria for the site(s). Geotechnical borings will be required to determine foundation conditions at the dam site(s).
- An evaluation of the existing mine workings to determine if the continued (and expanded) use of the mine as a transport system and storage site for contaminated water is appropriate. The evaluation shall include a preliminary water budget to determine if there is a potential for leakage from the mine to be contributing contamination to the regional bedrock groundwater. The evaluation shall also include an analysis of the physical integrity of the mine, the hydraulic flow paths within the mine, and the mine workings' capacity to provide long-term transport of contaminated water to the 6850 portal. Consideration shall also be given to constructing a piping/conduit system within the mine to better control the flow paths. Included shall be a plan for long-term operation and maintenance of the mine workings to assure their continued viability as a transport and storage system, and a contingency plan outlining alternatives in case long-term operation and maintenance of the mine workings becomes unfeasible or unsafe.
- An evaluation of the existing mine workings to determine appropriate locations for bulkheads required in adits to provide for optimum storage of water within the mine.
- An investigation of the waste rock and contaminated sediments deposited during storm events and high flow runoff. The investigation shall evaluate the nature, volume, and extent of deposited waste rock and sediments.

c. Collection/Storage/Transport of Meadow Creek Waters

The contaminated flows of Meadow Creek shall be diverted at a point below the lowest significant waste rock piles, and the water transported to storage, as necessary, prior to treatment at the existing treatment plant. The major elements to be evaluated shall include:

- A diversion/storage structure constructed upstream of the 7100 adit. The diversion/storage/dam will be either concrete or earthfill depending upon the alternatives analysis in the AOA, but shall include an impervious core or cutoff wall to underlying bedrock to intercept contaminated groundwater flowing through the shallow alluvium.
- An alternative storage concept shall be considered in the AOA report. This would entail constructing a dam on Meadow Creek near the location of the diversion structure sufficiently sized to store the design runoff event.
- Channels/pipelines to divert water from the storage reservoir to the mine at 7100 adit to provide increased storage capacity. The dam and mine and associated diversion channels shall be sized to provide adequate storage and conveyance capacity to provide for the design runoff event.
- A metered gravity pipeline to convey water from the mine or the contaminated water reservoir to the treatment plant at rates up to the design capacity of the treatment plant.
- Reconstruction/rerouting of the existing culvert that routes clean water from upper Blackbird Creek beneath the mine/mill site to assure that the clean water is not contaminated by infiltration from the waste rock in the mine/mill fill material.
- A second storage dam located just downstream from the mine/mill site to collect any remaining contaminated water in Meadow/Blackbird Creek for transport to the treatment plant. The dam shall include an impervious core or cutoff wall to underlying bedrock to intercept contaminated groundwater flowing through the shallow alluvium. The contaminated water will be gravity fed through a pipeline to the treatment plant. The mine/mill site fill material located downstream from the second storage dam shall be evaluated to determine its composition, geochemistry, and its potential to contribute significant contaminants to the surface water or groundwater systems.

- An alternative location for the second storage dam shall be considered. The alternative location would be downstream from the existing treatment plant location in Blackbird Creek. The dam shall provide an impervious core or cutoff wall to underlying bedrock to intercept contaminated groundwater flowing through the shall alluvium. A pump/pipeline system shall transport the contaminated water to the treatment plant.
- Relocation of acid or metals generating waste rock in Hawkeye Gulch and two other small areas on the east side of Meadow Creek. This would minimize areas requiring water collection for treatment and maximize the amount of clean water that can be diverted from the east side of the creek.
- Sediment control facilities constructed upstream from the diversion/storage dam to reduce siltation and loss of storage capacity.

The data needs include, but are not limited to:

- A geotechnical investigation at the dam sites for the contaminated water reservoirs at the site(s) for the diversion structure(s), and at the site for the hydraulic barrier at the downgradient end of the mine/mill site, including borings to determine conditions in the alluvium and underlying bedrock foundation.

d. Removal of Contaminated Sediment/Tailings from Blackbird Creek

Removal of contaminated sediment/tailings from depositional areas in Blackbird Creek shall be evaluated in the AOA.

The evaluation shall include, but not be limited to:

- Review the existing data on locations volume and metals concentrations in contaminated sediments/tailings from depositional areas in Blackbird Creek to determine potential for leachability and mobility.
- Determine anticipated water chemistry impacts should it be determined that metals leachability for specific overbank depositional areas are significant.
- Evaluate contaminated sediments/tailings relative to the potential for erosion and fluvial transport and downstream re-deposition during high flow events in Blackbird Creek.
- Evaluate contaminated sediments/tailings relative to potential to increase dissolved metals concentrations

in Blackbird Creek and Panther Creek to determine which depositional areas require action

If it is determined that contaminated sediments/tailings pose a threat to water quality in Blackbird Creek and Panther Creek, alternatives shall be evaluated for remediation. The alternatives evaluation shall include, but not be limited to, in-situ protection, removal/relocation and location and methods of disposal. Additional data needs shall be identified for design, if deemed necessary.

e. Water Treatment Plant

Effluent water quality (final remediation levels) from the water treatment plant(s) required to restore Panther Creek and Big Deer Creek will be determined upon completion of the focused RI/FS and will not be available for the implementation of this Early Action. Therefore, in the interim, at a minimum, the current NPDES discharge limits shall be considered preliminary remediation goals (PRGs) for the Early Action. Based on the evaluation described below the EPA in consultation with the State and Trustees will determine the PRGs for the Early Action. Final remediation levels will be determined upon completion of the RI/FS in the final Record of Decision. Expansion, replacement, relocation, and/or final polishing steps to the treatment process may be required for the final remedial action decision at the Site. As part of the AOA report:

- Determine whether the existing treatment plant capacity can handle the combined flows up to the design runoff events from Bucktail and Meadow Creeks considering storage capacity.
- Determine whether the existing treatment plant can achieve, at a minimum, the current NPDES discharge requirements considering the increased loadings. In addition, determine the maximum removal of contaminants that the existing treatment plant can achieve, and provide recommendations of early action construction alternatives and/or operations options that will maximize removal of contamination.
- If the existing treatment plant cannot meet either the flow criteria or the effluent limitation criteria listed above, provide an evaluation of the maximum removal of contamination possible with the existing treatment plant, and the associated maximum anticipated reduction in metals loading to the Big Deer and Blackbird Creek systems. In addition, provide recommendations of early action construction alternatives and/or operations options that will maximize removal of contamination from the Big

Deer/Blackbird Creek systems to achieve at a minimum the NPDES discharge requirements.

- Determine whether the location of the existing treatment plant is cost effective and consistent with long term remedial action alternatives.
- Provide a sludge disposal plan, considering the increased loadings to the treatment plant.

3.0 Deliverables

A schedule for the deliverables listed below and meetings is provided in the Order and is attached.

1. Work Plan/Sampling and Analysis Plan

A work plan, including sampling and analysis plan (WP/SAP) shall be submitted and provide a description of, and a schedule for investigations necessary to address data needs and gaps for the design and implementation of the Early Action. The sampling and analysis plan shall consist of a field sampling plan and quality assurance project plan, as described in the RI/FS Statement of Work.

2. Analysis of Alternatives

The Analysis of Alternatives (AOA) report shall include, but not be limited to:

- Identification of early action alternatives for diversion of clean water, and for collection, storage and treatment of contaminated waters. A minimum of four stand alone alternatives shall be developed for evaluation. At least one complete alternative shall be developed and evaluated that does not include storage of contact waters within the mine. Also included shall be an evaluation of each alternative relative to the potential for re-opening the mine.
- Analysis of Early Action alternatives for the Meadow Creek drainage will include an evaluation of alternatives that can be designed and implemented in a phased manner such that the response actions are consistent with, and do not preclude, alternatives being evaluated for the Bucktail Creek drainage.
- Analysis of early action alternatives based upon effectiveness (including long-term reliability), implementability, cost, operations and maintenance considerations and consistency with possible long-term remedies. The cost analysis shall include present worth analyses, where appropriate, to compare initial

costs versus long-term operation and maintenance costs. Present worth analyses shall be based upon a discount rate of 5 percent and a 30 year period.

- A preliminary analysis of applicable or relevant and appropriate requirements (ARARs). The ARARs analysis shall include a preliminary listing of Federal and State chemical-, action-, and location-specific ARARs and requirements that are to be considered (TBCs). The EPA, in consultation with the State and Trustees, will make the determination as to whether laws are applicable, relevant and appropriate, if compliance is possible, or if a waiver is required.
- A technical memorandum providing results of the evaluation for the design runoff event.
- Recommendations for early action alternatives. EPA, in consultation with the State and Trustees, will choose the early action alternative to be implemented.
- Results of analyses and calculations such as mass loadings, water budgets, rainfall and runoff events, and storage analyses (inflow/outflow calculations).
- A description of, and an expeditious schedule for completion of activities required by the Order, including design deliverables, and construction activities.

3. Preliminary Design Report (25% Design)

The preliminary design report shall include, but not be limited to:

- Results of field investigations, such as water quality analyses, flow measurements, geotechnical investigations, stability analyses, and other engineering investigations
- Design calculations
- Construction drawings sufficiently completed so that all major project features are shown, including locations, sizes, and essential details of key elements. Construction drawings may be bound separately.
- Outline of technical specifications
- A preliminary evaluation of operation and maintenance requirements which will include, but not be limited to: monitoring and maintaining the systems to collect,

store, and transport contaminated waters from Bucktail and Meadow Creek drainages to treatment; any systems constructed to separate contaminated waters from clean waters in either drainage; and monitoring and maintaining the treatment plant and sludge disposal site, considering the increased loadings. To the extent practicable, provide for such post-removal site control consistent with section 300.415(k) of the NCP and OSWER Directive 9360.2-02

- A presentation of the Preliminary Design Report to the EPA, the State and the Trustees, to explain the design features.

4. 90% Design

The 90% Design shall include, but not be limited to:

- Complete construction drawings and technical specifications, suitable for bidding.
- Design calculations, including any calculations developed, modified, or changed from the previous submittals.
- A final plan for operation and maintenance, including any changes from the submittal in the preliminary design report.
- A construction plan, including schedules for delivery of major equipment items and for construction of major features, and a plan for inspection and quality control during construction.

BLACKBIRD MINE
Schedule for Early Action

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ID	Task Name	Dur.	Start	Finish	Pred.	1895																	
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	AOA	139d	10/20/94	3/7/95																			
2	Tech Memo Design Runoff	40d	10/20/94	11/28/94																			
3	Tech Memo Agency Review	7d	11/29/94	12/5/94	2																		
4	Final Tech Memo Design Runoff	10d	12/6/94	12/15/94	3																		
6	Analysis of Alternatives (AOA)	100d	10/20/94	1/27/95	2SS																		
8	Agency Comment - AOA	15d	1/28/95	2/11/95	5																		
7	Meeting on AOA and WP/SAP	1d	2/17/95	2/17/95	6FS+5d																		
8	Final AOA	21d	2/12/95	3/4/95	6																		
9	Approval of AOA	3d	3/5/95	3/7/95	8																		
10	PHASE I Design	240d	10/20/94	6/16/95																			
11	Draft WP/SAP	7d	10/20/94	10/26/94																			
12	Agency Comments WP/SAP	3d	10/27/94	10/29/94	11																		
13	Final WP/SAP	1d	10/30/94	10/30/94	12																		
14	Field Investigation	30d	10/31/94	11/29/94	13																		
15	Draft PDR (a)	30d	1/28/95	2/26/95	14FS+59d																		
16	Agency Review - PDR	10d	2/27/95	3/8/95	15																		
17	PDR Meeting	1d	3/8/95	3/9/95	16																		
18	Agency Comments - PDR	10d	3/10/95	3/19/95	17																		
19	90% Design	67d	3/20/95	5/25/95	18																		
20	Agency Comments - 90% Design	10d	5/26/95	6/4/95	19																		
21	Final Design	10d	6/5/95	6/14/95	20																		
22	Agency Review - Final Design (b)	2d	6/15/95	6/16/95	21																		

Project: Date: 10/17/94

BMPG Activities

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BLACKBIRD MINE
Schedule for Early Action

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ID	Task Name	Dur.	Start	Finish	Pred.	1995														
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	PHASE II Design (c)	371d	2/20/95	2/25/96																
2	Draft - WP and SAP	30d	2/20/95	3/21/95																
3	Agency Comments - WP and SAP	15d	3/22/95	4/5/95	2															
4	Final WP and SAP	21d	4/6/95	4/28/95	3															
5	Approval of WP and SAP	7d	4/27/95	5/3/95	4															
6	Field Investigation and Lab Analysis (d)	60d	6/15/95	8/13/95																
7	Draft PDR	30d	8/14/95	9/12/95	6															
8	Agency Review - PDR	10d	9/13/95	9/22/95	7															
9	PDR - Meeting	1d	9/23/95	9/23/95	8															
10	Agency Comments - PDR	10d	9/24/95	10/3/95	9															
11	90% Design	90d	10/4/95	1/1/96	10															
12	Agency Comments - 90% Design	30d	1/2/96	1/31/96	11															
13	Final Design	15d	2/1/96	2/15/96	12															
14	Agency Review - Final Design	10d	2/16/96	2/25/96	13															

- (a) Supplement Noranda's PDR to 25% design for: Meadow Creek and Bucktail Creek clean water ditches, Lower Meadow Creek Dam, Hawkeye Gulch Waste Rock removal, Mill Creek Dam, Bucktail Creek Waste Rock stabilization for runoff, and Blackbird Creek depositional areas.
- (b) Date Certain
- (c) Phase II includes items identified in AOA that require further investigation.
- (d) As soon as site is accessible.

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